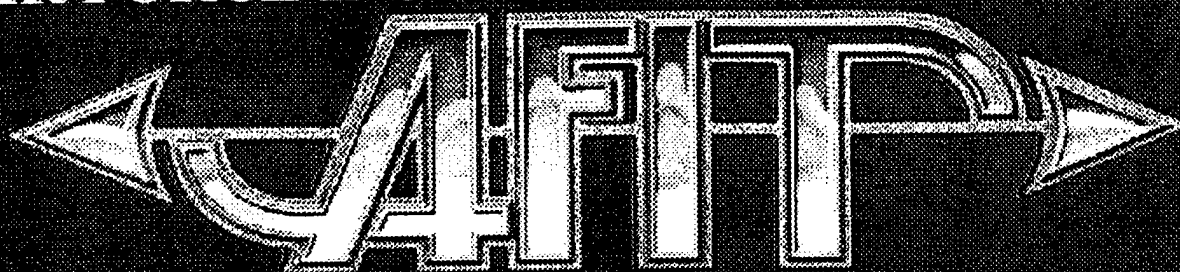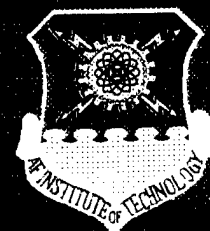20000818 022

AIR FORCE INSTITUTE OF TECHNOLOGY

GRADUATE SCHOOL OF ENGINEERING

&

GRADUATE SCHOOL OF
LOGISTICS & ACQUISITION MANAGEMENT

RESEARCH REPORT 1999

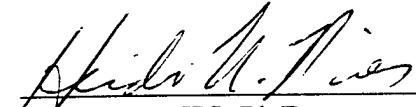Period of Report: 1 October 1998 to 30 September 1999

AIR FORCE INSTITUTE OF TECHNOLOGY
Wright-Patterson Air Force Base, Ohio
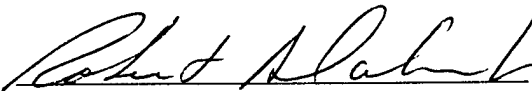
The Department of Defense, federal government, and non-government agencies supported the work reported herein.
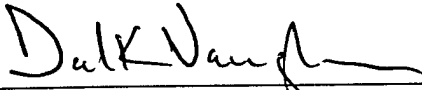
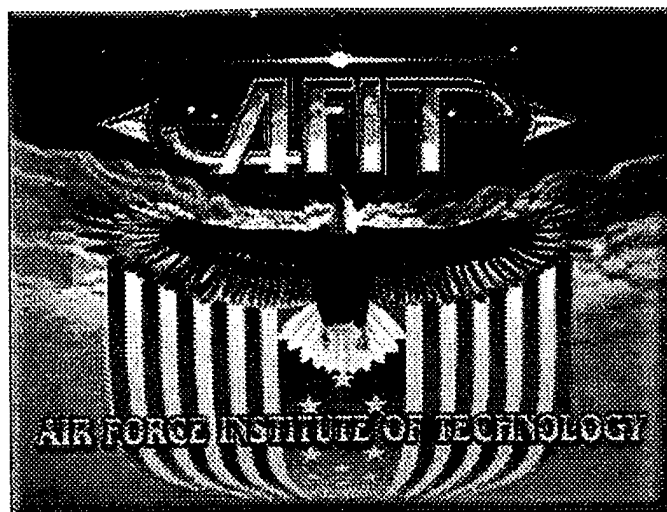Reproduction of all or part of this document is authorized.

Reviewed by:

HEIDI R. RIES, Ph.D.
Associate Dean for Research
Graduate School of Engineering

Released by:

ROBERT A CALICO, JR.
Dean, Graduate School of Engineering

DAVID K. VAUGHAN
Assistant Dean for Research & Consulting
Graduate School of Logistics &
    Acquisition Management

FOREWORD

The mission of the Air Force Institute of Technology (AFIT) graduate programs, to support national security through education, research, and consultation, continues to be intrinsically interwoven into the Air Force mission. AFIT maintains a close affiliation with Air Force research organizations and operational communities as well as Department of Defense Agencies. This affiliation enables AFIT to provide a unique environment for research essential to the training of future managers and engineers in disciplines critical to anticipated defense needs.

This Research Report is prepared annually by the Office of Research and Consulting to solicit continued involvement and support from Air Force laboratories and DoD agencies, and to encourage new sponsors to participate in AFIT's research program. AFIT recognizes that research provides a dual opportunity, to enhance military competitiveness and to ensure timely transfer of new technology to US industry.

The FY 1999 report reflects the final year of operation as two separate graduate schools, the Graduate School of Engineering and the Graduate School of Logistics and Acquisition Management. Effective October 1, 1999 the two resident graduate schools were merged to form the Graduate School of Engineering and Management. The educational and research programs from both schools are continuing to flourish under the new organizational structure.

GEORGE K. HARITOS, Colonel, USAF
Commandant
Air Force Institute of Technology

FOREWORD

The mission of the Air Force Institute of Technology (AFIT) graduate programs, to support national security through education, research, and consultation, continues to be intrinsically interwoven into the Air Force mission. AFIT maintains a close affiliation with Air Force research organizations and operational communities as well as Department of Defense Agencies. This affiliation enables AFIT to provide a unique environment for research essential to the training of future managers and engineers in disciplines critical to anticipated defense needs.

This Research Report is prepared annually by the Office of Research and Consulting to solicit continued involvement and support from Air Force laboratories and DoD agencies, and to encourage new sponsors to participate in AFIT's research program. AFIT recognizes that research provides a dual opportunity, to enhance military competitiveness and to ensure timely transfer of new technology to US industry.

The FY 1999 report reflects the final year of operation as two separate graduate schools, the Graduate School of Engineering and the Graduate School of Logistics and Acquisition Management. Effective October 1, 1999 the two resident graduate schools were merged to form the Graduate School of Engineering and Management. The educational and research programs from both schools are continuing to flourish under the new organizational structure.

GEORGE K. HARITOS, Colonel, USAF
Commandant
Air Force Institute of Technology

AIR FORCE INSTITUTE OF TECHNOLOGY

TABLE OF CONTENTS

AFIT HISTORY

The Institute

AFIT traces its roots to the early days of powered flight when it was apparent that the progress of military aviation depended upon special education in this new science. In 1919, the Air School of Application was established at McCook Field in Dayton, Ohio, the home of Orville and Wilbur Wright.

When Congress authorized creation of the Air Corps in 1926, the school was renamed the Air Corps Engineering School and moved to Wright Field in 1927. Shortly after Pearl Harbor, the school suspended classes, but it reopened as the Army Air Forces Engineering School in 1944 to conduct a series of accelerated courses to meet emergency requirements.

After World War II, 1946, the Army Air Force Institute of Technology was established as part of the Air Materiel Command. The Institute was composed of two colleges: Engineering and Maintenance, and Logistics and Procurement. These colleges were later redesignated the College of Engineering Sciences and the College of Industrial Administration.

When the Air Force became a separate service in 1947, the Institute was renamed the Air Force Institute of Technology. That same year, the School of Civil Engineering Special Staff Officer's Course began. In 1948 civilian institution programs were transferred to AFIT.

In 1950, command jurisdiction of AFIT shifted from Air Materiel Command to Air University (AU) with headquarters at Maxwell AFB, Alabama. The Institute, however, remained at what was now known as Wright-Patterson AFB. In 1951, the two AFIT colleges were combined into the Resident College.

The Institute established a logistics education program at WPAFB in 1955, and The Ohio State University conducted the first courses on a contract basis. In 1958, AFIT began a series of short courses in logistics as part of the Air Force Logistics Command (AFLC) Education Center. Later that year, the School of Logistics became a permanent part of AFIT.

In 1954, the 83d Congress authorized the Commander, Air University, to confer degrees upon persons in the AFIT Resident College. The college was later divided into the School of Engineering, the School of Logistics, and the School of Business. The first undergraduate engineering degrees were granted in 1956, and the first graduate degrees in business in 1958. The School of Business programs were transferred to civilian universities in 1960. In 1963, the School of Logistics was redesignated the School of Systems and Logistics. The Civil Engineering Center was also redesignated as the Civil Engineering School.

In 1967, AFIT became a member of the Dayton Miami Valley Consortium (DMVC), which later changed its name to Southwestern Ohio Council for Higher Education (SOCHE). The council is an association of colleges, universities, and industrial organizations in the Dayton area which are united to promote educational advancement. AFIT has traditionally been active in both the council and in other community and interinstitutional programs.

AFIT's flexibility is such that it adjusts quickly to changing Air Force requirements. The faculty, comprised of highly qualified military and civilian personnel, stay abreast of projected Air Force

operations, and the programs are continually updated to offer its students the latest available material. For example, an Air Force Software Review in 1989 led to AFIT programs in software engineering and software systems management barely a year later. When environmental concerns culminated in the Pollution Prevention Act of 1990, AFIT designed and implemented both graduate and professional continuing education programs in environmental engineering management. In 1994, Air Force Weather requested a meteorology program designed specifically for the warfighter, and in less than one year AFIT delivered a graduate education program in military meteorology with an initial enrollment of fourteen officers.

In 1995, AFIT's Graduate School of Engineering became a member of the Dayton Area Graduate Studies Institute (DAGSI) along with the graduate engineering schools of Wright State University and the University of Dayton. The purpose of the partnership was to provide, through the combined engineering and research resources of the three schools, educational and research opportunities at the MS and PhD level. The University of Cincinnati and the Ohio State University became affiliate members of DAGSI in 1997. DAGSI provides a continuing source of advanced technological expertise for the region covered by the five schools. The DAGSI program covers a broad spectrum of over 30 major research areas and benefits from the support of business and industry, government, and civic sectors of the Dayton Region.

Early in Fiscal Year 97, the Secretary of the Air Force made a decision to close AFIT resident graduate schools. In anticipation of closure, AFIT developed and began a transition and closure plan. Resident Ph.D. students scheduled for FY 97 were diverted to the Civilian Institution Program and a transition plan for actual closure was developed, identifying manpower positions for elimination in FYs 97 through 00.

In April 1998, after a visit to AFIT, the Acting Secretary of the Air Force, F. Whitten Peters, announced a reversal of the Air Force decision to terminate the AFIT resident graduate programs. AFIT will continue a restructuring initiative begun in FY 96 that will size the resident graduate programs to meet the Air Force education requirements of the FY 03 force structure. As part of this restructuring, the two resident graduate schools were merged into The Graduate School of Engineering and Management on Oct 1, 1999.

Research
Creative, relevant research programs are essential to both graduate education and the continuous modernization of military capability. Consequently, research has been an important element of the educational enterprise throughout AFIT's history, often in collaboration with scientists of the Air Force Research Laboratories co-located at Wright-Patterson Air Force Base. The implementation of the PhD program at AFIT in 1965 resulted in significant growth of the research activities on the AFIT campus. The expanded role of sponsored research at AFIT was recognized by creating the Office of Research for the School of Engineering in 1989 and the Office of Research and Consulting for the School of Logistics and Acquisition Management in 1990 (now the Office of Research and Consulting in the Graduate School of Engineering and Management).

Several key projects are illustrative of AFIT's research impact on the Air Force, the Department of Defense, and the nation. For more than twenty years, the Department of Engineering Physics has conducted strong research in high energy laser technology and delivered mission ready graduates to AF laboratories. Two PhD graduates served as directors of the Air Force laser

program, and four PhD graduates led the team demonstrating a 40 kW laser for anti-satellite missions. The AFIT laser weapons research group is now supporting the development of the Airborne Laser, based on the Chemical Oxygen Iodine Laser co-invented by an AFIT graduate. Other work of the laser weapons research group includes the development of lasers for remote sensing and counter-proliferation applications, new optical diagnostic methods, and studies of ionization mechanisms in the thermosphere for satellite survivability.

In support of the Air Force's and DoD's environmental restoration programs, AFIT established a remediation research program in the early 1990s involving faculty from four departments. Since that time, over 50 student theses on the subject have been published and graduates have gone on to manage remediation programs at bases and major commands throughout the Air Force. Research contributions include a field demonstration of a bioremediation technology that destroys trichloroethylene, the most common groundwater contaminant at DoD installations, and some of the first studies of the biodegradability of tolyltriazole, an aircraft deicing fluid additive recently recognized as an important groundwater contaminant at airfields throughout the nation.

AFIT researchers in the Department of Operational Science, responding to the needs of the C-17 Systems Program Office (SPO), developed an object-oriented simulation model to quantify the rate of paratrooper/vortex interaction for various airdrop formations, enhanced through high-resolution computer visualization of model results. The research results were briefed to the C-17 SPO Director, the Director of Test and Evaluation for the Office of the Secretary of Defense, the Undersecretary of the Army for Operations Research, and the Commander of the XVIII Airborne Corps. Utilizing their C-17 airdrop simulation model, the AFIT researchers also led a preflight study of the multinational CENTRAZBAT '97 Exercise; their analysis was praised by the XVIII Airborne Corps Commander as "dead-on!"

The Department of Aeronautics and Astronautics has an ongoing research program studying high cycle fatigue, the cause of the most dominant issue relevant to gas turbine engine damage. Currently, there exists only a cursory understanding of damage, crack initiation, and crack propagation under high cycle fatigue conditions. It has been recognized that a significant number of failures of engine components are attributable to fretting damage, such as dove-tailed blades, including press-fit or interlocking connections which are subjected to surface wear and fretting fatigue. The study in collaboration with the Materials and Manufacturing Directorate of the Air Force Research Laboratory uses an integrated experimental/analytical numerical modeling approach to investigate the high cycle fretting fatigue behavior of titanium alloys.

In December 1998, AFIT broke ground for a $8.9 million engineering laboratory. The facility will be used for experimental research in aeronautical engineering, electrical engineering, applied physics and environmental science. The lab is scheduled for completion in the summer of 2000, and will enable AFIT to continue its tradition of high quality research programs in support of the Air Force mission.

SECTION 1

INTRODUCTION

Research, inextricably integrated with graduate education, requires support to sustain and develop new knowledge. Defense research has dual benefits, enhanced military operational capabilities and commercial application in the development of new products and processes. This report describes the broad technical spectrum of AFIT research interests and faculty expertise; the involvement of research sponsors; and the procedure for developing opportunities for participation in AFIT research activities. This report highlights and summarizes the FY 99 contributions of the Graduate School of Engineering (EN) and the Graduate School of Logistics and Acquisition Management (LA) to the Air Force mission. The October 1, 1999 merger of the two schools into the Graduate School of Engineering and Management will be reflected in the FY 00 report.

The Graduate School of Engineering consisted of six departments: the Department of Mathematics and Statistics (ENC), the Department of Electrical and Computer Engineering (ENG), the Department of Engineering Physics (ENP), the Department of Operational Sciences (ENS), the Department of Engineering and Environmental Management (ENV), and the Department of Aeronautics and Astronautics (ENY). The Graduate School of Logistics and Acquisition Management consisted of the Dean's Office (LA), the Department of Graduate Logistics Management (LAL), and the Department of Graduate Acquisition Management (LAS).

AFIT welcomes the opportunity to conduct research on topics of interest to the Air Force and other DoD organizations. Thesis/dissertation topics may be sent directly to the appropriate departments or to the Office of Research and Consulting. The Air Force, the DoD, and other government agencies are not the exclusive benefactors of faculty expertise, consultation, and the research technology developed at AFIT. Consultation and technology can be made available to the public for immediate commercial application and industrial problem solving. Technology transfer, through Cooperative Research and Development Agreements, gives direct access to the expertise to help solve problems and give advice. The cost of participation in technology transfer depends on the extent or resources used for any particular commercial/industrial client or educational institution. There may be no cost involved or prolonged use of equipment or faculty and students may be billed at cost.

Office of Research and Consulting
Graduate School of Engineering and Management

Points of Contact

Heidi R. Ries, Ph.D.
Associate Dean for Research
(937) 255-3636, ext 4544 (DSN: 785-3636, ext 4544)
e-mail Heidi.Ries@afit.af.mil

Gary M. Koenig, P.E.
Research Grants Engineer
(937) 255-3636, ext 4546 (DSN: 785-3636, ext 4546)
e-mail Gary.Koenig@afit.af.mil

SECTION 2

EXECUTIVE SUMMARY

2.1 RESEARCH AND CONSULTING OUTPUT MEASURES

Technology sharing and transfer are critical to the timely development of new operational capabilities. There are measurable indicators of AFIT's contribution to the engineering and scientific community and AFIT's success in staying well informed of technical possibilities and scientific opportunities. These include the number and quality of technical publications accepted by the editors of journals, the number of presentations accepted for regional, national and international conferences, the number of research projects conducted, the number of consultations performed for Air Force and DoD customers, and finally the number of student MS theses and PhD dissertations that are completed and submitted to the Defense Technical Information Center. For fiscal year 1999, these output measures are shown in Table 2.1 and in Fig. 2.1.

Table 2.1: Graduate School's Faculty Research and Consulting Output

Graduate School Department	Number of Faculty	Refereed Publi-cations	Other Publi-cations	Presen-Tations	Funded Research Projects	Significant Consul-tations	Masters Theses Advised	Doctoral Disserts. Advised
Engineering								
Math (ENC)	10	5	3	12	3	1	5	2
Elec (ENG)	24	15	61	44	43	27	65	7
Phys (ENP)	18	10	6	28	14	6	33	4
Op Sc (ENS)	14	18	17	82	51	10	29	2
Envir (ENV)	8	10	3	10	6	2	15	0
Aero (ENY)	19	13	25	19	13	7	22	1
Total (EN)	93	71	115	195	130	53	169	16
Logistics and Acquisition Management								
Deans (LA)	3	2	8	12	0	1	2	0
Log (LAL)	12	8	2	8	0	1	19	0
Acq Mgt (LAS)	7	3	2	0	0	2	9	0
Total (LA)	22	13	12	20	0	4	30	0
Total EN+LA	115	84	127	215	130	57	199	16

2.2 RESEARCH AND CONSULTING SPONSORSHIP

As members of an Air Force School, the faculty of the AFIT focus their research on current problems as well as future systems of the Air Force and other DoD organizations. Evidence of this focus is that Air Force, DoD and Government agencies externally sponsored 85% of all theses and dissertations listed in Table 2.2. In addition, most of the research projects and consultations were carried out for Air Force and DoD units. The data are summarized in Table 2.2 and Fig. 2.2.

2
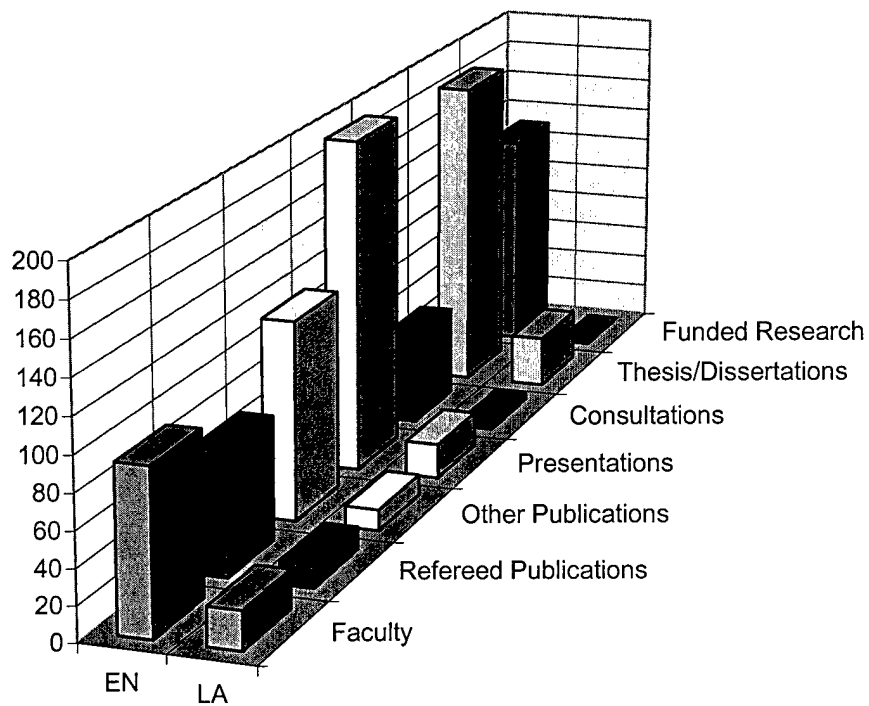
Figure 2.1: Research Output Measures, AFIT Resident Graduate Schools
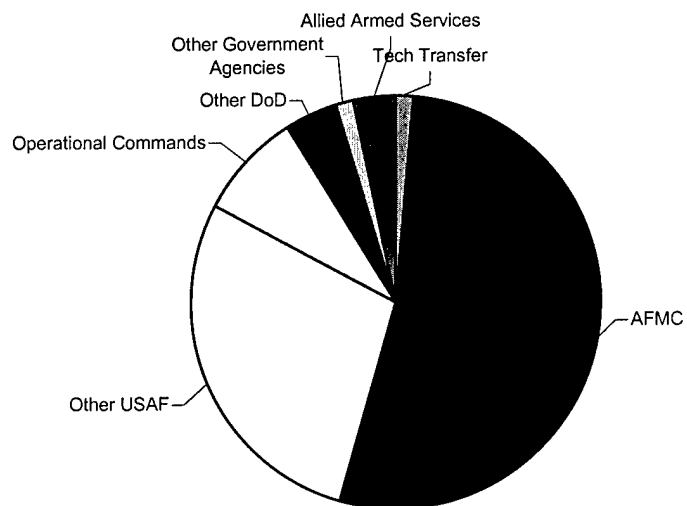
Figure 2.2: Sponsors of AFIT Resident Graduate Schools' Theses and Dissertations

Table 2.2: Sponsorship of AFIT Graduate Schools' Research

Sponsor Organization	Master's Theses (LA)	Masters' Theses (EN)	PhD Dissertation (EN)	Funded Research (EN)	Significant Consultations (LA)	Significant Consultations (EN)
Aeronautical Systems Center	1	9		2		5
AFOSR		7	1	49		
AFRL	5	72	10	24		25
Air Logistics Centers			1			
Space and Missile Center		3		2		
Other AFMC	1	4			1	1
Air Combat Command (ACC)	2	3				1
AEF Battlelab		1				
Cmd & Cntrl Battlelab		1				
UAV Battlelab		3				
AETC						
AFIT	8	14				
Air Force	5	10		8	2	9
AFOTEC		3	1			
AFPOA		1				
AF Space Command		1				
Space Battlelab		2				
Space Warfare Center		1				
AFTAC		5		1		
AF Weather Agency		1				
45th Weather Squadron		6				
Air Intelligence Agency		3				
Air Mobility Command	4	3	1			1
Allied Armed Services	4					
Army				2		1
US Army ERDEC		1				
Recruiting Command		1				
Safety Center		1				
Atlantic Command						
Joint CCWC		1				
Australian Dept of Defense		1				
Brazilian AF		1				
Canadian Forces		1				
Dept of Defense		4	1	10	1	
INSS		2				
NASA		1				
Other				1		6
Technology Transfer		2	1	11		4
TOTALS:	30	169	16	110	4	53

2.3 OUTSIDE FUNDING OF THE SCHOOL OF ENGINEERING'S RESEARCH

Many of the School of Engineering's theses and research projects completed under faculty supervision (sponsored or unsponsored) are funded in part by other Air Force, DoD and government units and agencies. Often this funding results from collaboration between faculty and thesis sponsors and occurs when the research project can be leveraged by the purchase of equipment or services not otherwise available. Table 2.3 and Fig. 2.3 summarize outside funding for FY 1999.

Table 2.3: Sponsoring Organizations for Funded Research

Sponsoring Organization	Dollars ($)
Air Force Research Lab (AFRL)	768,756
AFOSR	1,509,730
Other AFMC	55,772
Other USAF	188,650
Other DOD	385,062
DOE	52,257
Tech Transfer (CRDAs)	143,772
Total	3,103,999
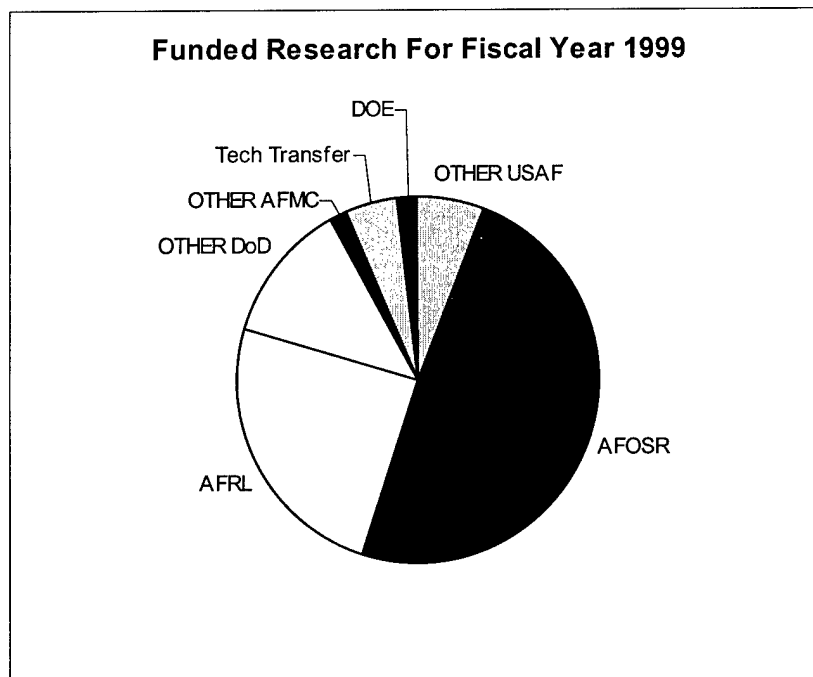
Figure 2.3: Funded Research for Fiscal Year 1999

5

2.4 RESEARCH ASSESSMENT QUESTIONNAIRE RESULTS

An AFIT Research Assessment Form was sent to each sponsor (See sample on the following page) of a master's thesis and doctoral dissertation project during FY 1999 to determine the projects contribution, significance and cost avoidance. Detailed results of the questions asked are shown in Table 2.4. The data in this table are based on seventy-seven (77) questionnaires returned out of the one hundred eighty-five (185) questionnaires mailed.

Table 2.4: Assessment of AFIT Graduate Schools Research

QUESTION	EN
Did this research contribute to a current Air Force/DoD project?	94%
The thesis work was: Highly significant Significant Slightly significant Not significant	40% 47% 9% 3%
Avg. Man-years of effort saved	1.2
Average cost avoided per thesis/dissertation	$140,462
Total cost avoided for all theses and dissertations sponsored (extrapolated from returned questionnaires)	$25,985,615
Rank of respondents Colonel (GM-15) Lt Col (GM-14) Major (GM-13) Captain (GS-12) Other	6% 24% 40% 16% 14%

RESEARCH ASSESSMENT QUESTIONNAIRE

TO:

Thank you for sponsoring the AFIT thesis or dissertation listed below. AFIT is working hard to keep its research focused on defense technologies of interest to the Air Force and to the nation.

Title:

Student Author: Designator:

Faculty Advisor:

Please help us determine the value and contribution of this research to your organization's

mission by answering the questions below:

1. Did this research contribute to a current task or goal of interest to your organization?   Y / N

2. Would you have completed this work if AFIT had not done it?   Y / N

3. Regardless of your answers above, how would you rate this work?   Highly significant
                                                                            Significant
                                                                            Slightly significant
                                                                            No significance

4. If AFIT had not done this work, please estimate what it would have cost your organization to

perform it, either by using in-house resources or by contract. *Man-Years _____ $_____

> *Please note that typically an MS thesis requires 0.5MY of the student's time and one month
> of the faculty advisor's time. For a PhD dissertation the numbers are 2MY for the student
> and 4 months for the advisor.

5. Would you like to make any remarks? (These will be shared with the academic department and the faculty chairperson.) (If necessary, please continue on reverse side)

You may mail this to AFIT/ENR, 2950 P Street, Wright-Patterson AFB OH 45433-7765, or fax it to (937) 656-7302 (DSN 986-7302), or just e-mail your answers (only) to 1 to 5 to enr@afit.af.mil. If you use e-mail, please include the designator above so that we might identify the project.

Thank you.

_____   _____
Name of Evaluator   Office Symbol

_____
Grade/Rank of Evaluator

2000 CALL FOR MS THESIS TOPICS

AFIT sends out an annual call for theses in an effort to involve sponsor organizations actively in research and education. Interested organizations may review the material presented in this report and contact AFIT with questions and areas of interest.

The Department of Electrical and Computer Engineering invites M.S. thesis suggestions and topics for the Computer Science and Computer Engineering programs. The areas covered by these programs include:

Artificial Intelligence	**Information Visualization**
Computer Communications Networks	**Numerical Analysis**
Database Systems	**Software Engineering**
High Performance Computing	**VLSI/VHSIC Systems**
Information Systems Security and Assurance	

The Department of Electrical and Computer Engineering invites M.S. theses suggestions and topics for the Electrical Engineering and Electro-Optics programs. The areas covered by these programs include:

Analog & Digital Communications	**Computational Electronics**
Satellite Communications	**Micro-Electro-Mechanical Systems (MEMS)**
Signal Processing	**Micro- & Opto-Electronic Materials & Devices**
Computational Electromagnetics	**Photonic Devices & Systems**
Radar, Electronic Combat	**Very Large Scale Integrated (VLSI) Circuits**
Low Observables (stealth)	**VLSI/VHSIC Systems**
Integrated Navigation Systems	**Radiation Hardened & Space Electronics**
Global Positioning System (GPS)	**Statistical Optics**
Flight Control Systems	**Optical Information Processing**
Automatic Target Recognition	**Pattern Recognition**

The Department of Engineering Physics invites M.S. theses suggestions and topics for the Engineering Physics, Nuclear Engineering and Electro-Optics programs. (Electro-Optics shared between Electrical Engineering and Engineering Physics) The areas covered by these programs include:

Lasers & Nonlinear Optics	**Atmospheric and Space Optics**
Nuclear Weapons Effects	**Optical Systems, Imaging & Remote Sensing**
Nuclear Proliferation and Their Effects	**Space Nuclear Power and Propulsion**
Electronic & Photonic Materials and Devices	
Environmental Remediation Fission/Fusion Material	

The Department of Operational Sciences invites M.S. theses suggestions and topics for the Operations Research, and Operational Analysis programs. Areas covered by these programs include:

Operations Research
Risk Assessment and Analysis
Quantitative and Qualitative Approaches to Space Operations
Quantitative and Qualitative Approaches to Operational Analysis
Planning, Deployment and Employment
Transportation
Wargaming

The Department of Systems and Engineering Management invites M.S. thesis suggestions and topics. Areas covered include:

Engineering Management	**Professional Development and Retention**
Environmental Policy and Planning	**Environmental Compliance and Remediation**
Environmental Risk Analysis	**Contract and Program Management**
Air Quality and Air Resource Mgmt	**Management Decision Analysis**
Outsourcing and Privatization	**Risk Communication**
Ecosystem Management Strategies	**Contingency Engineering Management**
Pollution Prevention & Econ Analysis	**Facilities Engineering and Management**
Groundwater Hydrology and Contaminant Transport	

The Department of Aeronautics and Astronautics invites M.S. theses suggestions and topics. Areas covered by these programs include:

Aerodynamics of Flight Vehicles	**Numerical Analysis & Computer**
Analysis of Aerospace Structures	**Simulation**
Theory and Applications of	**Computational Fluid Dynamics**
Composite Materials	**Reliability and Maintainability**
Dynamics & Control of Flight Vehicles	**Systems Engineering Design Studies**
Propulsion Systems for Flight Vehicles	

The Graduate School of Engineering and Management invites M.S. thesis suggestions and topics for the Logistics and Acquisition Management Programs. The areas covered by these programs include:

Acquisition Logistics Management	**Logistics Management**
Information Resource Management	**Inventory Management**
Transportation Logistics Management	

If you have any questions about engineering programs, please contact the Office of the Associate Dean for Research and Consulting, AFIT/ENR, 2950 P Street, Wright-Patterson AFB OH, 45433-7765 (email enrsta@afit.af.mil), (937) 255-3633, DSN 785-3633.

ESTABLISHING YOUR THESIS TOPIC IDEA EFFICIENTLY

1. Look through the credentials and interests of the AFIT faculty members in this book who support the programs listed above. Cross-reference with the Areas of Professional Expertise (section 3.2). Match your areas of interest with the research interests and applications of one or more faculty.

2. Read through the list of selected recent graduates' thesis topics. You may find one or more AFIT Faculty Advisors who have dealt with a topic in your interest area.

3. *All of the above information is under AFIT's home page on the internet. Please enter* http://www.afit.af.mil/ *then select 'Research'.*

4. *This is essential: Whether you work from this booklet or from the internet,* contact a faculty member to discuss your idea for a thesis topic. A topic that has strong faculty endorsement and support is much more likely to be chosen by the students than one that lacks faculty advocacy. Topics that fall outside the collective areas of faculty competence cannot be approved, even if chosen. For maximum effectiveness all around, *please talk to AFIT faculty before you submit a thesis suggestion.*

5. When calling, use the faculty member's DSN phone number to make direct contact. For commercial calling, replace the DSN number 785-xxxx, ext xxxx with (937) 255-xxxx, ext xxxx.

6. After talking to an AFIT faculty member, prepare and send your proposal as soon as possible. Use the sample proposal format in this book, or make up your own. **Send your proposal to the faculty member, to the department, or to AFIT/ENR, 2950 P St., Wright-Patterson AFB OH 45433-7765.**

Sample Thesis Topic Proposal

Use this format to write up your proposal, or develop your own. Send your proposal to the faculty member, appropriate department, or AFIT/ENR, Bldg 640, 2950 P St, Wright-Patterson AFB OH 45433-7765.

* S A M P L E *
PROPOSED THESIS TOPIC

1. **THESIS TOPIC:** Object-Oriented, Parallel, Discrete-Event Simulation Environment

2. **INDIVIDUAL SPONSOR:** Capt Lienert, RL/IRAA (DSN 785-3708)
Aeronautical Systems Center
5125 C St
Wright-Patterson AFB OH 45433-0098

3. **AFIT FACULTY CONTACTED:** Dr Thomas C. Hartrum, AFIT/ENG

4. **BACKGROUND/PROBLEM:** In order to investigate various approaches to speeding up the execution of battlefield simulations using parallel processors, there is a need to develop a simulation environment to allow for easy changes in application simulations, as well as parallel simulation protocols. The environment is to be written in Ada. An object-oriented simulation environment would provide AFIT students and faculty in the parallel simulation group the opportunity to write simulation programs without having to worry about low-level details of the machine interface. Such a simulation environment would need to support a distributed network of various parallel and sequential computers to support future simulation applications.

5. **OBJECTIVE/APPROACH:**   a. Analyze what is needed in a simulation environment.
b. Design the system, using objects defined in the analysis.
c. Implement the environment in Ada.

6. **RESOURCE REQUIREMENTS:**   a. Access to a parallel processor
b. Compatible parallel Ada compiler
c. Local area network

7. **REFERENCES:**   <u>Parallel Program Design</u>, Chandy & Misra
* S A M P L E *

SECTION 3

GRADUATE SCHOOL OF ENGINEERING

3.0 OVERVIEW

AFIT supports the Air Force mission by providing uniquely defense-oriented education through high quality graduate instruction, research, and consultation.

The FY 99 Graduate School of Engineering consisted of six departments: Department of Aeronautical and Astronautical Engineering (ENY), Department of Electrical Engineering and Computer Engineering (ENG), Department of Mathematics and Statistics (ENC), Department of Engineering and Environmental Management (ENV), Department of Engineering Physics (ENP), and Department of Operational Sciences (ENS). All six departments were retained following the October 1, 1999 merger with the Graduate School of Logistics and Acquisition Management to form the Graduate School of Engineering and Management. However, ENV was renamed the Department of Systems and Engineering Management to reflect its expanded program responsibilities.

A total of 169 masters theses and 16 PhD dissertations addressing a wide range of Air Force and DoD critical issues were written in 1999. In addition, the faculty produced 71 refereed journal articles, 115 other publications, 195 technical presentations, and were involved in 130 funded research projects.

The Dayton Area Graduate Studies Institute (DAGSI) is a unique university partnership originated by the engineering colleges of the University of Dayton (UD), Wright State University (WSU), and the Air Force Institute of Technology (AFIT). DAGSI coordinates, integrates, and leverages the formidable resources of the partnership, including the combined faculty, facilities, equipment and other supporting elements of all three institutions. Through DAGSI, AFIT, UD, and WSU allow their graduate engineering students to enroll in appropriate course offerings at any of the institutions for full credit toward their degree programs. The Ohio State University and the University of Cincinnati are affiliate members of DAGSI who participate in research collaboration. DAGSI operates the Joint AFRL/DAGSI Research Program, with an annual budget of approximately $4 million from the Ohio Board of Regents. Through DAGSI, scholarships are available at AFIT on either a part-time or full-time basis. Both civilians and military officers are eligible. For further information contact AFIT/ENA, (937) 255-3636 x4550, DSN 785-3636 x4550, or see www.dagsi.org.

Most of AFIT's research is conducted as the result of Air Force or DoD active sponsorship. The research suggested by these sponsors directly supports on-going defense projects, tasks and sub tasks. The majority of this sponsorship comes from the Air Force Materiel Command, especially the science and technology laboratories of that command. While the bulk of the AFIT research program responds to USAF/DoD suggestions, AFIT also collaborates with other universities on joint projects proposed by the National Science Foundation and other university grantors. AFIT is also active in transferring technology to the private sector through Cooperative Research and Development Agreements (CRDAs).

Committed to the continued involvement of Air Force, DoD, and government agencies in AFIT research and education, AFIT also encourages educational institutions and industry to benefit from AFIT resources through technology transfer. Persons and organizations interested in AFIT research may identify potential faculty collaborators from this report using section 3.2, "Areas of Professional Expertise," which is a list of technology key words followed by the names of involved faculty. Once a possible match is identified, further details regarding the faculty member's research interests may be found in section 3.3, "Faculty Credentials", which also includes his/her phone number and e-mail address. For general information and assistance, contact the Office of Research and Consulting (AFIT/ENR) at (937) 255-3633, DSN 785-3633. AFIT supports the Air Force mission by providing uniquely defense-oriented education through high quality graduate instruction, research, and consultation.

3.1 DEPARTMENT SYMBOLS AND LOCATIONS

Graduate School of Engineering (AFIT/EN), Bldg. 640, 2950 P Street, Wright-Patterson AFB, OH 45433-7765

Symbol	School Office/Department	Room	Telephone, (DSN)
EN	Office of the Dean Dr. Robert A. Calico, Jr., Dean Col Wayne F. Hallgren, Associate Dean Dr. D. Kirk Vaughan, Assistant Dean for Academic Affairs	100	(937) 255-3025 (DSN 785-3025) (937) 255-3025 (DSN 785-3025) (937) 255-4372 (DSN 785-4372) (937) 255-3636, x4557 (DSN 785-3636, x4557)
ENR	Office of Research and Consulting Dr. Heidi R. Ries, Associate Dean for Research	103	(937) 255-3633 (DSN 785-3633)
ENC	Department of Mathematics and Statistics Dr. Alan V. Lair	114	(937) 255-3098 (DSN 785-3098)
ENG	Department of Electrical and Computer Engineering Col Thurmon L. Deloney, II	218	(937) 255-2024 (DSN 785-2024)
ENP	Department of Engineering Physics Dr. Robert L. Hengehold	106	(937) 255-2012 (DSN 785-2012)
ENS	Department of Operational Sciences Col John M. Andrew	177	(937) 255-2549 (DSN 785-2549)
ENV	Department of Engineering and Environmental Management Lt Col WM Brent Nixon	204	(937) 255-2998 (DSN 785-2998)
ENY	Department of Aeronautics and Astronautics Dr. Bradley S. Liebst	201	(937) 255-3069 (DSN 785-3069)

3.2 AREAS OF PROFESSIONAL EXPERTISE

Ada: Graham, R.P.; Hartrum, T.C.
Adaptive Estimation: Maybeck, P.S.; Miller, M.M.
Adaptive Filtering, Multiple Model: Maybeck, P.S.; Miller, M.; Pachter, M.
Adaptive Optics: Gustafson, S.C.; Magee, E.P.; Pachter, M.
Adaptive Robust Estimation: Gustafson, S.C.; Miller, M.; Pachter, M.
Adaptive/Interferometric Clutter Erasure(ACE/ICE): Temple, M.A.
Advanced Distributed Simulation: Jacobs, T.M.
Aero/Gas Dynamics and Propulsion: Bons, J.P.; Franke, M.E.; King, P.I.
Aerodynamics: Bons, J. P.; Franke, M.E.; King, P.I.; Tragesser, S.G.
Aerospace Vehicle Stability and Control: Jacques, D.R.; Liebst, B.S.; Maybeck, P.S.; Miller, M.; Pachter, M.
Air Pollution Transport Modeling: Quinn, D.W.
Air Quality Management: Brothers, H.S.
Aircraft Impact Damage: Palazotto, A.N.
Aircraft Performance: Hallgren, W.F.
Aircraft Stability and Control: Calico, R.A.; Houpis, C.H.; Jacques, D.R.; Liebst, B.S.; Pachter, M.
Algorithm Development/Analysis: Deckro, R.F.; Graham, R.P.; Gustafson, S.C.; Hill, R.R.; Lamont, G.B.; Moore, J.T.; Potoczny, H.B.; Terzuoli, A.J.
Algorithms: Graham, R.P.; Lamont, G.B.
Analysis, Decision: Deckro, R.F.; Kloeber, J.M.; Kramer, S.C.; Lanning, J.W.; Maybeck, P.S.; Smith, E.P.
Analysis, Defense Systems: Hill, R.R.
Analysis, Probabilistic: Bauer, K.W.; Crown, J.S.; Gustafson, S.C.; Maybeck, P.S.; Murdock, W.P.; Reid, T.F.
Analytical Dynamics: Pachter, M.; Palazotto, A.N.; Spenny, C.H.
Applied Aerodynamics: Hallgren, W.F.
Applied Functional Analysis: Baker, W.P.; Chilton, L.K; Gustafson, S.C.; Lair, A.V.; Oxley, M.E.; Pachter, M.; Quinn, D.W.; Wood, A.W.
Applied Mathematics: Baker, W.P.; Chilton, L.K.; Ericksen, W. S.; Gustafson, S.C.; Lair, A.V.; Lamont, G.B.; Oxley, M.E; Pachter, M.; Palazotto, A.N.; Quinn, D.W.; Terzuoli, A.J.; Weeks, D.E.; Wood, A.W.
Artificial Intelligence: DeLoach, S.A.; Gunsch, G.H.; Gustafson, S.C.; Lamont, G.B.
Artificial Perception: Gustafson, S.C.; Kabrisky, M.J.; Oxley, M.E.
Astrodynamics: Calico, R.A.; Kelso, T.S.; Pachter, M.; Wiesel, W.E.
Asymptotic and Perturbation Methods: Baker, W.P.
Atmospheric Chemistry: Bailey, W.F.; Burggraf, L.W.; Della-Rose, D.J.; Miner, C.A.; Perram, G.P.; Walters, M.K.; Wolf, P. J.
Atmospheric Optics: Magee, E.P.; Pachter, M.
Automated Reasoning: Brown, W.M.; DeLoach, S.A.; Gunsch, G.H; Gustafson, S.C.; Kabrisky, M.J.; Lamont, G.B.
Aviation Meteorology: Miner, C.A.
Ballistic Missile Defense: Deloney, T.L.
Battlefield Weather Sensing: Miner, C.A.; Walters, M.K.
Bayes Estimation: Crown, J.S.; Gustafson, S.C.; Kramer, S.C.; Maybeck, P.S.; Moore, A.H.; Pachter, M.
Bilevel Programming: Deckro, R.F.; Moore, J.T.
Biodegradation and Biodeterioration: Bleckmann, C.A.; Goltz, M.N.; Shelley, M.L.
Boundary Layer Stability and Transition: Franke, M.E.
Boundary Value Problems, Free/Moving: Collins, P.J.; Oxley, M.E.; Chilton, L.K.; Terzuoli, A.J.; Wood, A.W.
Campaign Planning: Deckro, R.F.
Cascade Flows: King, P.I.
Cavity Acoustics: Baker, W.P.; Franke, M.E.
Chemical Kinetics: Bailey, W.F.; Burggraf, L.W.; Heyse, E. C.; Perram, G.P.; Weeks, D.E.; Wolf, P.J
Chemical Toxicity: Burggraf, L.W.

Combat Modeling: Kloeber, J.M.; Miller, J.O.

Combustion Molecular Dynamics: Little, J.K.

Command Control Communications: Raines, R.A.; Temple, M.A.

Communication Theory: Magee, E.P.; Temple, M.A.

Communications Networks: Baldwin, R.O.; Chan, Y.; Deckro, R.F.; Raines, R.A.; Temple, M.A.

Complex Adaptive Simulation: Bailey, T.G.; Hill, R.R.; Miller, J.O.; McIntyre, G.A.

Composite Materials: Mall, S.; Palazotto, A.N.

Computation, Parallel/Distributed: Hartrum, T.C.; Lamont, G.B.; Terzuoli, A.J.

Computational Complexity: Moore, J.T.; Deckro, R.F.; Chrissis, J.W.; Chan, Y.; Hill, R.R.

Computational Electromagnetics: Chilton, L.K.; Collins, P.J.; Lamont, G.B.; Terzuoli, A.J.; Wood, A.W.

Computational Electronics and Nanoelectronics: Lott, J.A.

Computational Structural Mechanics: Chilton, L.K.

Computer Aided Design (CAD): Brothers, C.P.; Jacobs, T.M.; Lott, J.A.

Computer Aided Software Engineering: Jacobs, T.M.

Computer Architecture: Brothers, C.P.; Lamont, G.B.

Computer Communication Networks: Baldwin, R.O.; Gunsch, G.H.; Lamont, G.B.; Raines, R.A.; Reid, T.F.; Temple, M.A.

Computer Graphics: Jacobs, T.M.; Weeks, D.E.

Computer Simulation: Bailey, T.G.; Bailey, W.F.; Bauer, K.W.; Chambal, S. P.; Chrissis, J.W.; Hartrum, T.C.; Jodoin, V.J.; Kelso, T.S.; Kloeber, J.M.; McIntyre, G.A.; Miller, J.O.; Pohl, E. A.; Raines, R.A.; Stytz, M.R.;Weeks, D.E.

Constitutive Modeling: Haritos, G.K.

Contaminant Transport: Goltz, M.N.; LaPuma, P.T.; Oxley, M.E.; Quinn, D.W.; Shelley, M.L.; Thal, A.E.

Contaminated Groundwater Assessment: LaPuma, P.T.; Shelley, M.L.

Continuous Simulation: Kelso, T.S.; Pachter, M.

Continuum Mechanics: Mall, S.; Turcotte, J.S.

Control Systems, Aerospace: D'Azzo, J.J.; Houpis, C.H.; Maybeck, P.S.; Miller, M.; Pachter, M.; Raquet, J.F.

Control Systems, Computational and Numerical Methods: Jacques, D.R.; Lamont, G.B.; Maybeck, P.S.; Miller, M.; Pachter, M.; Raquet, J.F.; Wiesel, W.E.

Control Systems, Computer-Aided Design: D'Azzo, J.J.; Lamont, G.B.; Maybeck, P.S.; Miller, M.; Pachter, M.; Raquet, J.F.

Control Systems, Intelligent: Lamont, G.B.; Maybeck, P.S.; Miller, M.; Pachter, M.

Control Systems, Parallel/Distributed: Lamont, G.B.; Pachter, M.

Control Systems, Robotic: Miller, M.; Pachter, M.

Control Theory & Systems: Calico, R.A.; D'Azzo, J.J.; Houpis, C.H.; Jacques, D.R.; Kramer, S.C.; Lamont, G.B.; Liebst, B.S.; Maybeck, P.S.; Miller, M.; Pachter, M.; Raquet, J.F.

Control Theory, Linear/Nonlinear: D'Azzo, J.J.; Houpis, C.H.; Jacques, D.R.; Kramer, S.C.; Liebst, B.S.; Maybeck, P.S.; Miller, M.M.; Pachter, M.; Raquet, J.F.; Wiesel, W.E.

Cost Analysis: Brothers, H.S.; Kloeber, J.M.; Gallagher, M. A.; Nixon, W.B.

Cost Models: Deckro, R.F.; Gallagher, M. A.

Critical Path Methods: Deckro, R.F.; Chrissis, J.W.

Data Acquisition: King, P.I.

DataBases: Chan, Y.; Lamont, G.B.; Talbert, M.L.

Data Mining: Talbert, M.L.

Data Processing: Talbert, M. L.

DataBase Management: Talbert, M.L.

Database Systems, Management: Potoczny, H.B.; Talbert, M.L.

Database Systems, Object-Oriented: Potoczny, H.B.; Talbert, M.L.

Decision Support Systems: Gunsch, G.H.

Design of Experiments: Bauer, K.W.; Bailey, T.G.; Chambal, S. P.; Crown, J.S.; Hill, R.R.; Lanning, J.W.; Miller, J.O.; Moore, A.H.; Reynolds, D.E.; White, E.D.

Differential Games: Pachter, M.

Digital Communications: Magee, E.P.; Raines, R.A.; Reid, T.F.; Temple, M.A.
Digital Control Systems: D'Azzo, J.J.; Houpis, C.H. ; Lamont, G.B.; Maybeck, P.S.; Miller, M.M.; Pachter, M.
Dynamic Meteorology: Miner, C.A.; Walters, M.K.
Dynamics, Aircraft/Spacecraft: Liebst, B.S.; Pachter, M.; Spenny, C.H.; Tragesser, S.G.
Dynamics, Chaotic: Chan, Y.; Wiesel, W.E.
Ecological Resource Management: Bleckmann, C.A.; Shelley, M.L.
Economic Models: Chan, Y.; Deckro, R.F.
Economic Theory: Chan, Y.
Eigenstructure Assignment and Control: D'Azzo, J.J.; Liebst, B.S.; Pachter, M.
Elasticity: Chilton, L.K.
Electroluminescence: Largent, C.C.
Electromagnetic Propagation Phenomenology: Temple, M.A.; Terzuoli, A.J.
Electromagnetic Radiation and Scattering: Baker, W.P.; Chilton, L.K.; Collins, P.J.; Terzuoli, A.J.; Wood, A.W.
Electromagnetic Theory: Collins, P.J.; Pyati, V.P.; Terzuoli, A.J.
Electromagnetics: Collins, P.J.; Pyati, V.P.; Terzuoli, A.J.
Electronic Warfare: Miller, M.; Pyati, V.P.; Raquet, J.F.; Temple, M.A.
Electro-optics: Gustafson, S.C.; Lott, J.A.; Magee, E.P.; Marciniak, M.A.; Roh, W.B.; Hengehold, R.L.; Largent, C.C.
Embedded Software Systems: Baldwin, R.O.; Lamont, G.B.
Encryption/Decryption: Potoczny, H.B.
Engineering Design Optimization: Chrissis, J.W.
Environmental Chemistry: Burggraf, L.W.
Environmental Impacts of Equipment and Facilities: Bleckmann, C.A.; Brothers, H.S.; Deckro, R.F.; Kloeber, J.M.; LaPuma, P.T.; Nixon, W.B.; Shelley, M.L.
Environmental Management in Acquisition: Brothers, H.S.
Environmental Management Systems: Brothers, H.S.; LaPuma, P.T.; Nixon, W.B.
Environmental Management: Bleckmann, C.A.; Brothers, H.S.; Deckro, R.F.; Goltz, M.N.; Holt, D.T.; Kloeber, J.M.; LaPuma, P.T.; Nixon, W.B.; Shelley, M.L.; Thal, A.E.
Environmental Microbiology: Bleckmann, C.A.
Environmental Protection: Deckro, R.F.; Kloeber, J.M.
Environmental Remediation - Chemical and Radioactive: Bleckmann, C.A.; Goltz, M.N.; Nixon, W.B.; Perram, G.P
Environmental Risk Assessment: Chan, Y.; Deckro, R.F.; Kloeber, J.M.; LaPuma, P.T.; Nixon, W.B.; Shelley, M.L.
Environmental Risk Reduction Engineering: Goltz, M.N.; LaPuma, P.T.; Nixon, W.B.; Shelley, M.L.
Epitaxial Crystal Growth: Lott, J.A.
Evolutionary Computation: Lamont, G.B.
Executive Development: Holt, D.T.
Expert Systems: DeLoach, S.A.; Gunsch, G.H.; Lamont, G.B.
Facility Engineering Management: Brothers, H.S.; Nixon, W.B.
Facility Location: Chan, Y.; Chrissis, J.W.; Deckro, R.F.; Moore, J. T; Nixon, W.B.
Failure Mechanisms, Monolithic/Multiphase Materials: Haritos, G.K.
Fatigue: Haritos, G.K.; Mall, S.
Fault Detection and Isolation in Dynamic Systems: Maybeck, P.S.; Miller, M.
Finite Array Scattering (EM Waves): Collins, P.J.; Terzuoli, A.J.
Finite Elements/Differences: Chilton, L.K.; Mall, S.; Palazotto, A.N.; Quinn, D.W.; Terzuoli, A.J.; Wood, A.W.
Fire Control: Pachter, M.
Flexible Structure Control: Jacques, D.R.; Liebst, B.S.; Maybeck, P.S.; Pachter, M.
Flight Control Systems: D'Azzo, J.J.; Houpis, C.H.; Jacques, D.R.; Liebst, B.S.; Maybeck, P.S.; Miller, M.; Pachter, M.
Flight Test Engineering: Liebst, B.S.; Miller, M.; Pachter, M.; Raquet, J.F.

Fluid Dynamics, Viscous/Incompressible: Bons, J.P.; Franke, M.E.; King, P.I.
Fluid Mechanics: Bons, J.P.; Franke, M.E.; King, P.I.; Little, J.K.
Fluidics: Franke, M.E.
Forecasting: Chan, Y.; Gallagher, M. A.; Gustafson, S.C.; Lanning, J.W.
Fourier Optics: Gustafson, S.C.; Kabrisky, M.J.; Magee, E.P.; Rogers, S.K.; Terzuoli, A.J.
Fracture Mechanics: Haritos, G.K.; Mall, S.
Fuzzy Logic Control: Lamont, G.B.; Pachter, M.
Gallium Arsenide Lasers: Hengehold, R.L.; Largent, C.C.; Marciniak, M.A.
Gas Dynamics: Bailey, W.F.; Franke, M. E.; King, P.I.; Perram, G.P.
Gas Turbine Cooling: Bons, J. P.
General Systems Theory: Kramer, S.C.; Smith, E.P.
Genetic Algorithms: Hill, R.R.; McIntyre, G.A.; Moore, J.T.
Geographic Information Systems: Chan, Y.
Global Communications: Raines, R.A.; Temple, M.A.
Global Positioning Systems: Miller, M.M.; Raquet, J.F.
Goal Programming: Chan, Y.; Chrissis, J.W.; Deckro, R.F.; Moore, J.T.
Goodness-of-Fit Reliability Testing: Crown, J.S.; Moore, A.H.
Graph Theory and Optimization: Smith, E.P.
Graph Theory: Lamont, G.B.; Potoczny, H.B.
Graphics: Jacobs, T.M.
Ground Water Modeling: Goltz, M.N.; Lair, A.V.; Oxley, M.E.; Shelley, M.L.
Ground Water Monitoring and Remediation: Bleckmann, C.A.; Goltz, M.N.; Thal, A.E.
Guidance & Control: Houpis, C.H.; Jacques, D.R.; Liebst, B.S.; Maybeck, P.S.; Miller, M.M.; Pachter, M.; Raquet, J.F.; Tragesser, S.G.
Guidance and Navigation: Maybeck, P.S.; Miller, M.M.; Pachter, M.; Raquet, J.F.
Hazardous Materials Management: LaPuma, P.T.; Nixon, W.B.
Hazardous Waste Management: Nixon, W.B.; Thal, A.E.
Hazardous Waste Treatment Technologies: Bleckmann, C.A.; Goltz, M.N.; Nixon, W.B.; Thal, A.E.
Health Physics: John, G.
Heat Transfer: Bons, J. P.; Franke, M.E.; King, P.I.; Little, J.K.
High Performance Computing: Lamont, G.B.
High Range Resolution Radar: Temple, M.A.; Terzuoli, A.J.
Hueristics: Bailey, T.G.; Deckro, R.F.; Hill, R.R.; McIntyre, G.A.; Moore, J.T.
Human Information Processing: Chan, Y.; Kabrisky, M.J.
Human Resource Management: Holt, D.T.
Hypersonics: Little, J.K.
Image Generation/Storage/Processing: Gustafson, S.C.; Kabrisky, M.J.; Magee, E.P.
Image Reconstruction: Gustafson, S.C.; Magee, E.P.; Terzuoli, A.J.;
Imaging, Sensors and Signal Processing: Gustafson, S.C.; Lamont, G.B.; Magee, E.P.
Industrial Engineering: Chambal, S.P.; Chrissis, J.W.; Deckro, R.F.; Lanning, J.W.
Inertial Navigation Systems: Maybeck, P.S.; Miller, M.; Pachter, M.; Raquet, J.F.
Information Operations: Chan, Y.; Deckro, R.F.; Gunsch, G.H.; Raines, R.A.
Information Survivability: Deckro, R.F.; Gunsch, G.H.; Raines, R.A.
Information Survivability: Information Systems: DeLoach, S.A.; Gunsch, G.H.; Lamont, G.B.; Talbert, M.L.
Information Visualization: Jacobs, T.M.
Information Warfare: Chan, Y.; Deckro, R.F.; Gunsch, G.H.; Raines, R.A.; Talbert, M.L.; Temple, M.A.
Infrared countermeasures: Largent, C.C.
Infrared lasers: Largent, C.C.; Marciniak, M.A.; Hengehold, R.L..
Infrared signatures: Largent, C.C.
Integer Programming: Chan, Y.; Chrissis, J.W.; Deckro, R.F.; Hill, R.R.; Moore, J.T.
Integrated Navigation Systems: Miller, M.; Raquet, J.F.
Intelligent Interfaces: DeLoach, S.A.; Gunsch, G.H.; Talbert, M.L.
Intelligent Systems: Gunsch, G.H.; Gustafson, S.C.; Kabrisky, M.J.

Inventory Analysis and Control: Chrissis, J.W.; Deckro, R.F.
Job-Shop Scheduling: Deckro, R.F.
Kalman Filters: Maybeck, P.S.; Miller, M.; Pachter, M.; Raquet, J.F.
Knowledge Based Systems: DeLoach, S.A; Graham, R.P.; Gunsch, G.H.; Lamont, G.B.; Talbert, M.L.
Laser Optics: Gustafson, S.C.; Magee, E.P.
Laser Spectroscopy: Burggraf, L.W.; Marciniak, M.A.; Perram, G.P.,
Lasers - Chemical: Perram, G.P.
Lasers - Semiconductor: Lott, J.A.
Lasers - Vertical Cavity Surface Emitting: Lott, J.A.
Learning Theory: Gustafson, S.C.; Reynolds, D.E.
Lidar: Gustafson, S.C.; Magee, E.P.
Life Cycle Management: Deckro, R.F.
Light-Emitting Diodes: Lott, J.A.
Linear Optics: Gustafson, S.C.; Kabrisky, M.J.; Magee, E.P.
Linear Programming: Bailey, T.G.; Chan, Y.; Chrissis, J.W.; Deckro, R.F.; Moore, J.T.
Linear Systems: Kabrisky, M.J.; Magee, E.P.; Maybeck, P.S.; Miller, M.; Pachter, M.; Raquet, J.F.; Terzuoli, A.J.
Logic Design: Brown, W..M.; Lamont, G.B.
Logistics: Chan, Y.; Hill, R.R.
Low Observables: Collins, P.J.; Terzuoli, A.J.
Luminescence: Hengehold, R.L.; Largent, C.C.; Marciniak, M.A.; Yeo, Y.K.
Machine Learning: Gunsch, G,H.; Gustafson, S.C.; Kabrisky, M.J.
Maintainability: Chambal, S. P.; Murdock, W.P.; Temple, M.A.; Terzuoli, A.J.
Management Cybernetics: Reynolds, D.E.
Management Engineering: Deckro, R.F.
Management Planning and Control: Deckro, R.F.
Manufacturing: Chrissis, J.W.; Deckro, R.F.
Mass Transport Phenomena: Goltz, M.N.; Shelley, M.L.
Materials Chemistry: Burggraf, L.W.
Mathematical Models: Deckro, R.F.; Gustafson, S.C.; Moore, J.T.; Chrissis, J.W.
Mathematical Programming: Chan, Y.; Chrissis, J.W.; Deckro, R.F.; Lamont, G.B.; Moore, J.T.; Pachter, M.; Reid, T.F.
Maximum Thrust Propulsive Nozzles: Franke, M.E.
Mechanics: Impact and Penetration: Torvik, P.J.
Medical Imaging: Collins, P.J.; Terzuoli, A.J.
Mesoscale Meteorology: Miner, C.A.; Walters, M.K.
Meteorology: Huffines, G.R.; Miner, C.A.; Walters, M.K.
Meteorological Data: Talbert, M.L.
Micro-Electro-Mechanical Systems (MEMS): Lott, J.A.
Microelectronics: Brothers, C.P.; Lott, J.A.
Microwave Acoustics: Terzuoli, A.J.
Mid-Infrared Semiconductor Lasers: Hengehold, R.L.; Marciniak, M.A.; Weeks, D.L.
Military Space Systems: Deloney, T.L.; Kelso, T.S.
Models: Deckro, R.F.; Hill, R.R.; McIntyre, G. A.; Moore, J.T.
Molecular Dynamics: Perram, G.P.; Weeks, D.E.
Molecular Electronics: Lott, J.A.
Molecular Orbital Calculations: Burggraf, L.W.
Molecular Spectroscopy: Burggraf, L.W.; Perram, G.P.; Weeks, D.E.
Mössbauer Spectrometry: John, G.
Multicriteria Decision Making: Chan, Y.; Kloeber, J.M.; Lamont, G.B.; LaPuma, P.T.; Pachter, M.
Multirate and Wavelet Signal Processing: Gustafson, S.C.
Multivariable Control: D'Azzo, J.J.; Houpis, C.H.; Jacques, D.R.; Lamont, G.B.; Liebst, B.S.; Maybeck, P.S.; Miller, M.; Pachter, M.

17

Multivariate Analysis: Barr, D.R.; Bauer, K.W.; Lamont, G.B.; Maybeck, P.S.; Miller, M.; Reynolds, D.E.

Network Analysis: Chan, Y.; Deckro, R.F.; Hill, R.R.; Kloeber, J.M.

Network Flows: Bailey, T.G.; Chan, Y.; Chrissis, J.W.; Deckro, R.F.

Neural Networks: Bauer, K.W.; Gustafson, S.C.; Kabrisky, M.J.; McIntyre, G.A.; Oxley, M.E.; Pachter, M.

Nonlinear Control: Jacques, D.R.; Pachter, M.; Wiesel, W.E.

Nonlinear Dynamics: Agnes, G.S.; Liebst, B.S.; Pachter, M.; Palazotto, A.N.; Wiesel, W.E.

Nonlinear Mechanics: Calico, R.A.; Pachter, M.; Palazotto, A.N.; Wiesel, W.E.

Nonlinear Optics: Gustafson, S.C.; Magee, E.P.

Nonlinear Programming: Chrissis, J.W.; Deckro, R.F.

Nonlinear Systems Stability: Pachter, M.; Wiesel, W.E.

Nonlinear Vibrations: Pachter, M.

Nonlinear/Stochastic Systems Analysis: Kramer, S.C.; Maybeck, P.S.; Pachter, M.; Reid, T.F.; Smith, E.P.

Nonparametric Statistics: Hill, R.R.; Miller, J.O.; Lanning, J.W.

Nuclear Chemical Engineering, Computational: Mathews, K.A.

Nuclear Fallout Modeling: Jodoin, V.J.

Nuclear Proliferation: Jodoin, V.J.

Nuclear Radiation Detection: Burggraf, L.W.

Nuclear Radiation Spectroscopy and Detection: John, G..

Nuclear Radiation Transport, Computational: Mathews, K.A.

Nuclear Weapon Effects Simulation: Mathews, K.A.

Nuclear Weapon Effects: Jodoin, V.J.; Mathews, K.A.; Susalla, M.J.

Numerical Analysis: Bailey, W.F.; Baker, W.P.; Chilton, L.K.; Gustafson, S.C.; Mathews, K.A.; Moore, A.H.; Palazotto, A.N.; Oxley, M.E.; Quinn, D.W.; Weeks, D.E., Wood, A.; Terzuoli, A.J.

Numerical Weather Prediction: Walters, M.K.

Object-Oriented Programming and Simulation: Bailey, T.G.; Chambal, S.P.; DeLoach, S.A.; Graham, R.P.; Hartrum, T.C.; Kelso, T.S.; Kloeber, J.; Lamont, G.B.; Miller, J.O.; Talbert, M.L.

Operations Research: Andrew, J. M.; Bailey, T.G.; Chan, Y.; Chrissis, J.W.; Crown, J.S.; Deckro, R.F.; Kloeber, J.M.; McIntyre, G.A.; Miller, J.O.; Moore, A.H.; Moore, J.T.; Murdock, W.P.; Pachter, M.; Reid, T.F.

Operations Testing and Evaluation: Crown, J.S.; Reid, T.F.

Optical Diagnostics: Hengehold, R.L.; Marciniak, M.A ; Perram, G.P.; Roh, W.B.

Optical Information Processing: Gustafson, S.C.; Kabrisky, M.J.; Magee, E.P.

Optical Neural Computers: Gustafson, S.C.; Kabrisky, M.J.

Optimal Control: Jacques, D.R.; Pachter, M.; Reid, T.F.; Wiesel, W.E.

Optimal Estimation and Stochastic Control: Gustafson, S.C.; Jacques, D.R.; Kramer, S.C.; Maybeck, P.S.; Miller, M.; Pachter, M.

Optimization Theory: Chan, Y.; Chrissis, J.W.; Deckro, R.F.; Gustafson, S.C.; Lamont, G.B.; Maybeck, P.S.; Moore, J.T.; Oxley, M.E.; Pachter, M.; Reid, T.F.

Optimization, Network and Combinatorial: Chan, Y.; Lamont, G.B.; Moore, J.T.; Deckro, R.F.

Optimization: Hill, R.R.; Moore, J.T.

Optoelectronic/Semiconductor Device Physics: Hengehold, R.L.; Largent, C.C.; Marciniak, M.A.; Yeo, Y.K.

Optoelectronics: Lott, J.A

Orbital Mechanics: Kelso, T.S.; Tragesser, S.G.; Wiesel, W.E.

Organic Chemistry: Bleckmann, C.A.; Goltz, M.N.

Organizational Change & Development: Holt, D.T.

Organizational Climate and Cultural Assessments: Holt, D.T.

Parallel Processors: Brothers, C.P.; Lamont, G.B.; Raines, R.A.

Parameter Estimation: Crown, J.S.; Gustafson, S.C.; Lamont, G.B.; Maybeck, P.S.; Miller, M.; Pachter, M.; Quinn, D. W.

Parametric Programming: Deckro, R.F.; Moore, J.T.

Pattern Recognition: Chan, Y.; Gustafson, S.C.; Kabrisky, M.J.; Terzuoli, A.J.
Personnel Evaluation: Holt, D.T.
PERT: Deckro, R.F.
Pharmacokinetic Modeling: Quinn, D.W.; Shelley, M.L.
Phased Array Antennas: Collins, P.J.; Terzuoli, A.J.
Photonic Crystals: Wood, A.W.
Photonics: Lott, J.A
Physical Meteorology: Huffines, G.R.
Physics of the Upper Atmosphere (Ionosphere & Magnetosphere): Bailey, W. F.; Della-Rose, D.J.; Wolf, P.J.
Planetary Astronomy: Wiesel, W.E.
Pointing and Tracking: Maybeck, P.S.; Pachter, M.
Pollution Prevention: Brothers, H.S.; LaPuma, P.T.
Probability and Statistics: Bailey, T.G.; Barr, D.R.; Bauer, K.W.; Chan, Y.; Crown, J.S.; Gustafson, S.C.; Hill, R.R.; Kloeber, J.M.; Lanning, J.W.; Magee, E.P.; McIntyre, G.A.; Miller, J.O.; Moore, A.H.; Murdock, W.P.; Pachter, M.; Reid, T.F.; Reynolds, D.E.
Production Models: Deckro, R.F.; Kloeber, J.M.
Program Management: Brothers, H.S.; Deckro, R.F.; Holt, D.T.; Nixon, W.B.
Quadratic Programming: Deckro, R.F.; Chrissis, J.W.
Quality Improvement: Bauer, K.W.; Hill, R.R.; Holt, D.T.; Lanning, J.W.; Nixon, W.B.; Reynolds, D.E.
Quantitative Feedback Theory: Houpis, C.H.; Pachter, M.
Queueing Networks: Chan, Y.; Chrissis, J.W.
Radar Cross-Section Statistics: Gustafson, S.C.; Magee, E.P.; Pyati, V.P.; Terzuoli, A.J.
Radar Detection: Magee, E.P.; Pyati, V.P.; Terzuoli, A.J.
Radar Measurements: Collins, P.J.; Magee, E.P.; Pyati, V.P.; Temple, M.A.; Terzuoli, A.J.
Radar: Magee, E.P.; Pyati, V.P.; Temple, M.A.; Terzuoli, A.J.
Radiation Imaging: Burggraf, L.W.
Radomes: Collins, P.J.; Temple, M.A.
Random Variate Modeling and Generation: Gustafson, S.C.; Hill, R.R.; Maybeck, P.S.; Miller, J.O.; Pachter, M.
Real-Time Communications Protocol: Baldwin, R.O.
Reliability: Barr, D.R.; Chan, Y.; Chambal, S. P.; Crown, J.S.; Moore, A.H.; Murdock, W.P.
Remote Sensing: Burggraf, L.W.; Gustafson, S.C.; Kelso, T.S.; Largent, C.C.; Magee, E.P.; McIntyre, G.A.; Perram, G.P.; Terzuoli, A.J.
Research Management: Deckro, R.F.; Kloeber, J.M.
Response Surface Methodology: Lanning, J.W.
Risk Analysis: Deckro, R.F.; Kloeber, J.M.; LaPuma, P.T.; Shelley, M.L.
Risk Communication and Management: LaPuma, P.T.; Nixon, W.B.; Shelley, M.L.
Robotics: Gustafson, S.C.; Magee, E.P.; Spenny, C.H.
Routing: Bailey, T.G.; Chan, Y.; Deckro, R.F.; Hill, R.R.; Moore, J.T.
Satellite Communications Systems: Raines, R.A.; Temple, M.A.
Satellite Dynamics: Pachter, M.; Spenny, C.H.; Wiesel, W.E.
Satellite Image Processing: Chan, Y.; Gustafson, S.C.; Kelso, T.S.
Scheduling: Deckro, R.F.; Hill, R.R.; Moore, J.T.
Scientific Visualization: Gustafson, S.C.; Lamont, G.B.
Search Theory: Lamont, G.B.; Pachter, M.
Secure Communications: Gunsch, G.H.; Potoczny, H.B.; Raines, R.A.
Semiconductor devices: Hengehold, R.L.; Largent, C.C.; Yeo, Y.K.;
Semiconductor lasers: Hengehold, R.L.; Largent, C.C.; Marciniak, M.A.; Weeks, D.E.
Semiconductors Physics: Brothers, C.P.; Hengehold, R.L.; Lott, J.A.; Marciniak, M.A.; Yeo, Y.K.
Sensor Management: McIntyre, G.A.
Sensor Scheduling: McIntyre, G.A.
Sensors: Brothers, C.P.; Burggraf, L.W.
Shell Analysis: Palazotto, A.N.

Shock and Vibration: Palazotto, A.N.

Signal Processing: Gustafson, S.C.; Kabrisky, M.J.; Lamont, G.B.

Silicon and Silicon Carbide Chemistry: Burggraf, L.W.

Smart Structures: Agnes, G.S.; Jacques, D.R.

Software Engineering, Architectures: DeLoach, S.A.; Graham, R.P.; Hartrum, T.C.; Jacobs, T.M.; Lamont, G.B.

Software Engineering, Formal Methods: DeLoach, S.A.; Graham, R.P.; Hartrum, T.C.; Lamont, G.B.

Software Engineering, Knowledge-Based: DeLoach, S.A; Graham, R.P.; Hartrum, T.C.; Lamont, G.B.

Software Engineering: Baldwin, R.O.; DeLoach, S.A; Graham, R.P.; Hartrum, T.C.; Jacobs, T.M.; Talbert, M.L.

Software Visualization: Jacobs, T.M.

Solid State Physics: Lott, J.A.

Space Communications: Raines, R.A.; Temple, M.A.

Space Electronics: Brothers, C.P.

Spatial-Temporal Modeling: Chan, Y.; Gustafson, S.C.; Lamont, G.B.

Spectral Estimation: Gustafson, S.C.; Pachter, M.

Speech and Image Processing: Gustafson, S.C.; Kabrisky, M.J.

Speech Recognition: Gustafson, S.C.; Kabrisky, M.J.

Statistical Aspects of Simulation: Bailey, T.G.; Bauer, K.W.; Crown, J.S.; Gustafson, S.C.; Hill, R.R.; Kloeber, J.M.; Maybeck, P.S.; Miller, J.O.; Reid, T.F.; Reynolds, D.E.

Statistical Modeling: Chan, Y.; Crown, J.S.; Gustafson, S.C.; Hill, R.R.; Kloeber, J.M.; McIntyre, G.A.; Miller, J.O.; Reynolds, D.E.; White, E.D.

Statistical Optics: Gustafson, S.C.; Magee, E.P.; Pachter, M.

Statistical Process Control: Bauer, K.W.; Gustafson, S.C.; Lanning, J.W.; Pachter, M.; Reynolds, D.E.

Statistics, Parametric: Gustafson, S.C.

Statistics, Applied/Theoretical: Bauer, K.W.; Chan, Y.; Chrissis, J.W.; Crown, J.S.; Gustafson, S.C.; Miller, J.O.; Moore, A.H.; Reid, T.F.; Reynolds, D.E.; White, E.D.

Statistics, Environmental: Bauer, K.W.; Reynolds, D.E.

Statistics, Multivariate: Barr, D.R.; Bauer, K.W.; Gustafson, S.C.; Maybeck, P.S.; Reynolds, D.E.

Statistics, Parametric: Crown, J.S.; Reynolds, D.E.

Steganography: Potoczny, H.B.

Stochastic Search Algorithms: Gustafson, S.C.; Lamont, G.B.; Pachter, M.

Stochastic Systems: Andrew, J. M.; Barr, D.R.; Chrissis, J.W.; Gustafson, S.C.; Maybeck, P.S.; Miller, M.M.; Moore, A.H.; Murdock, W.P.; Raquet, J.F.; Reid, T.F.

Strategic Management: Holt, D.T.

Stress Analysis: Torvik, P.J.

Structural Control Optimization/Dynamics: Calico, R.A.; Jacques, D.R.; Liebst, B.S.; Pachter, M.

Structural Dynamics: Turcotte, J.S.

Superlattice Structures: Lott, J.A.; Weeks, D.E.

Supersonic Flight Trajectory Optimization: Pachter, M.

Surface Chemistry and Physics: Burggraf, L.W.

Surfactant Enhanced Subsurface Remediation: Thal, A.E.

Synoptic Meteorology: Miner, C.A.

System Dynamics: Pachter, M.; Shelley, M.L.

System Identification: Pachter, M.

Systems Engineering: Miller, M.M.; Talbert, M.L.

Systems Management: Deckro, R.F.

Technology Assessment: Chan, Y.; Kloeber, J.M.

Technology Transfer: Deckro, R.F.; Goltz, M.N.

Telecommunications: Raines, R.A.; Reid, T.F.; Temple, M.A.

Test Design and Analysis: Crown, J.S.

Thrust Vector Control: Franke, M.E.; Pachter, M.

Total Quality Management: Deckro, R.F.

Trajectory Optimization: Tragesser, S.G.

Transportation Systems Analysis: Chan, Y.; Deckro, R.F.; Hill, R.R.; Kloeber, J.M.; Moore, J.T.

Very Large Scale Integrated Circuits (VLSI): Brothers, C.P.; Lott, J.A.

Vibration and Damping: Torvik, P.J.

Vibration Suppression - Active and Passive: Agnes, G.S.; Jacques, D.R.

Vibrational Dynamics: Calico, R.A.; Pachter, M.; Palazotto, A.N.; Weeks, D.E.

Virtual Environments: Gustafson, S.C.; Jacobs, T.M.

Viscoplasticity: Palazotto, A.N.

Voice Communications: Raines, R.A.

Wargaming: Kloeber, J.M.; McIntyre, G.A.; Pachter, M.

Wastewater Analysis and Treatment: Bleckmann, C.A.; Goltz, M.N.; Shelley, M.L.

Wave Propagation and Scattering: Baker, W.P.; Collins, P.J.; Gustafson, S.C.; Magee, E.P.; Terzuoli, A.J.; Wood, A.W.

Wave Propagation: Baker, W.P.; Collins, P.J.; Temple, M.A.; Terzuoli, A.J.

Wavelet Analysis: Gustafson, S.C.; Kabrisky, M.J.; Oxley, M.E.

Weakly Ionized Gases: Bailey, W.F.; Della-Rose, D.J.

Weapons Effects (Non-Nuclear): Franke, M.E.

Weather Analysis and Forecasting: Miner, C.A.

3.3 FACULTY CREDENTIALS

AGNES, GREGORY S., Capt, Assistant Professor of Aerospace Engineering, Dept of Aeronautics and Astronautics, (AFIT/ENY); B.S.A.E., Rensselaer Polytechnic Institute, 1989; M.S.A.E., University of Maryland, 1991; PhD, Engineering Mechanics, Virginia Tech, 1997. Capt Agnes previously worked in the Structural Dynamics Branch of the Air Force Research Laboratory. His research interests center around active and passive vibration suppression, smart structures, and nonlinear dynamics. He has published numerous conference and journal papers and is a member of the AIAA and ASME. Tel. 937-255-6565, x4317 (DSN 785-6565 x 4317), email = Gregory.Agnes@afit.af.mil

ANDREW, JOHN M., Col, Assistant Professor of Operations Research and Head, Dept of Operational Sciences (AFIT/ENS); BS, United States Air Force Academy, 1976; SM, Harvard University, 1982; PhD, Harvard University, 1985. Col Andrew's areas of interest include training simulations and stochastic processes. He is a member of the Institute for Operations Research and Management Science (INFORMS) and the Military Operations Research Society (MORS). Tel 937-255-6565, x4329 (DSN 785-6565, x4329), email = John.Andrew@afit.af.mil

BAILEY, T. GLENN, Lt Col, Assistant Professor of Operations Research, Dept of Operational Sciences (AFIT/ENS); BS, United States Air Force Academy, 1978; MA, Oklahoma State University, 1982; MS, Air Force Institute of Technology, 1988; PhD, University of Texas at Austin, 1995. Lt Col Bailey's areas of interest include simulation, response surface methodology, heuristics, and stochastic programming. He is a member of the Institute for Operations Research and Management Science (INFORMS), the Society for Industrial and Applied Mathematics (SIAM), and the Military Operations Research Society (MORS). Tel 937-255-6565, x4332 (DSN 785-6565, x4332), email = Glenn.Bailey@afit.af.mil

BAILEY, WILLIAM F., Associate Professor of Physics, Dept of Engineering Physics, (AFIT/ENP); BS, United States Military Academy, 1964; MS, The Ohio State University, 1966; PhD, Air Force Institute of Technology, 1978. Professor Bailey's research interests center on weakly ionized gases and reactive kinetics, with special applications to semiconductor processing in gas discharges, shock characterization in ionized flows and solutions of the inhomogeneous electron kinetic equation. Dr. Bailey has published over 20 papers in referred conference proceedings and international journals and chaired over 25 theses and dissertations. He is a member of Tau Beta Pi, Sigma Pi Sigma, and Sigma Xi. . Tel. 937-255-3636, x4501 (DSN 785-3636, x4501), email = William.Bailey@afit.af.mil

BAKER, WILLIAM P., Associate Professor of Mathematics, Dept of Mathematics and Statistics, (AFIT/ENC); BA, University of California at Irvine, 1969; MA, University of California at Irvine, 1970; PhD, Northwestern University, 1987. Dr. Baker's research interests include asymptotic and perturbation methods, wave propagation and scattering theory, applied mathematics, functional analysis, low observables, and numerical analysis. Dr. Baker's current research is in acoustical and electromagnetic scattering, and vibrational dynamics of composite sandwich material. His recent papers have been on fractional derivative models of viscoelastic materials. Dr. Baker is a Master Navigator with prior military assignments in flight test, satellite communications, cruise missile and radar analysis. Tel. 937-255-3636, x4517 (DSN 785-3636, x4517), email = William.Baker@afit.af.mil

BALDWIN, RUSTY O., Maj, Assistant Professor of Computer Engineering, Department of Electrical and Computer Engineering (AFIT/ENG), BSEE, New Mexico State University, 1987; MS, Computer Engineering, Air Force Institute of Technology, 1992; PhD, Virginia Polytechnic Institute and State University, 1999. His research interests include computer communication networks, queueing theory, performance modeling, and analysis and simulation of real-time communication systems. Tel. 937-255-3636, x4582 (DSN 785-3636, x4582), email = Rusty.Baldwin@afit.af.mil

BARR, DAVID R., Associate Professor Emeritus of Statistics, Dept of Mathematics and Statistics, (AFIT/ENC); BA, Miami University, 1954; MA, Miami University, 1954; MS, Miami University, 1957; PhD, State University of Iowa, 1964. Dr. Barr's interests include probability, statistics and stochastic processes, as well as the design of experiments. Tel. 937-255-3636, x4529 (DSN 785-3636, x4529), email = David.Barr@afit.af.mil

BAUER, KENNETH W., Jr., Professor of Operations Research, Dept of Operational Sciences (AFIT/ENS); BS, Miami University (Ohio), 1976; MEA, University of Utah, 1980; MS, Air Force Institute of Technology, 1981; PhD, Purdue University, 1987. Dr. Bauer's research interests include the statistical aspects of simulation, design of experiments, neural networks, and multivariate statistics. Tel. 937-255-6565, x4326 (DSN 785-6565, x4326), email = Kenneth.Bauer@afit.af.mil

BLECKMANN, CHARLES A., Associate Professor of Engineering and Environmental Management, Department of Systems and Engineering Management, (AFIT/ENV); BA, Secondary Education (Biology), University of Evansville, 1967; MS, Biology, Incarnate Word College, 1971; PhD, Botany, University of Arizona, 1977. Dr. Bleckmann's research interests include wastewater analyses and treatment, hazardous waste identification and management, land treatment of hazardous and non-hazardous wastes, groundwater monitoring and remediation, biodegradation and biodeterioration of materials and bioassays. Tel. 937-255-3636, x4721 (DSN 785-3636, x4721), email = Charles.Bleckmann@afit.af.mil

BONS, JEFFREY P., Maj, Assistant Professor of Aeronautical Engineering, Dept. of Aeronautics and Astronautics, (AFIT/ENY); BS, Massachusetts Institute of Technology, 1988; MS, Massachusetts Institute of Technology, 1990; PhD, Massachusetts Institute of Technology, 1997. Major Bons' research interests include fluid dynamics and heat transfer with a focus on applications to gas turbine engines. He has published several articles relating to turbine cooling and compressor stability with a research emphasis on experimentation. Major Bons' previous assignment was as a research engineer in the Propulsion Directorate of Wright Laboratory where he was awarded the 1995 S.D. Heron Award for Basic Research. Tel. 937-255-3636 x4643 (DSN 785-3636, x4643), email = Jeffrey.Bons@afit.af.mil

BRIDGMAN, CHARLES J., Professor Emeritus of Nuclear Engineering, Dept of Engineering Physics, (AFIT/ENP); BS, United States Naval Academy, 1952; MS, North Carolina State University, 1958; PhD, North Carolina State University, 1963. Dr. Bridgman's interest's center around nuclear weapon effects and military nuclear power applications. He has been associated with nuclear weapon defense since 1952. He was a member of the first military team to be operational on the H-bomb. His current research interest is nuclear weapon fallout modeling. He is the author of numerous technical articles in a wide variety of journals. In his 38 years on the AFIT faculty, he has chaired over 120 MS theses and PhD dissertations. He has received several awards including Tau Beta Pi Teacher of the Year and the Gage H. Crocker Outstanding Professor award. Dr. Bridgman is a Fellow of the American Nuclear Society. Tel. 937-255-3636, x4679 (DSN 785-3636, x4679), email = Charles.Bridgman@afit.af.mil .

BROTHERS, CHARLES P. Jr., Maj, Assistant Professor of Electrical Engineering and Chief, Electrical Engineering Division, Dept of Electrical and Computer Engineering, (AFIT/ENG); BSEE, Portland State University, 1985; MS, University of Southern California, 1987; MSEE, Air Force Institute of Technology, 1990; PhD, Air Force Institute of Technology, 1994. Major Brothers research interests are focused on space electronics, high-performance low-power microelectronic circuits, semiconductor devices, and advanced silicon materials technologies. He is funded by the Air Force Research Laboratory to develop radiation tolerant microelectronics. He is advising PhD and MS students since his arrival at AFIT in June 1998. He has authored several papers and is a senior member in the IEEE. Tel. 937-255-3636, x4618 (DSN 785-3636, x4618), Email = Charles.Brothers@afit.af.mil

BROTHERS, HEIDI S., Maj, Assistant Professor of Engineering and Environmental Management, Department of Systems and Engineering Management, (AFIT/ENV); BS, Civil Engineering, Portland State University, 1984; MS, Systems Management, University of Southern California, 1987; PhD., Environmental Engineering, University of Cincinnati, 1995. Her research interests include air quality management, engineering management, environmental management and environmental management in acquisition. Major Brothers is a professional engineer. Tel. 937-255-3636, x4800 (DSN 785-3636 x4800), email = Heidi.Brothers@afit.af.mil

BROWN, WILLIAM M., Professor of Electrical and Computer Engineering, Dept of Electrical and Computer Engineering (AFIT/ENG); BSEE, West Virginia University, 1952; MSE., 1955, Dr. Eng., The John Hopkins University, 1957. Dr. Brown has over forty years of varied experience in research, teaching, management, and administration. He was the founder and President for 24 years of the Environmental Research Institute of Michigan, prior to which he was a Professor of Electrical and Computer Engineering at the University of Michigan. His research and teaching experience is extensive in remote sensor systems, random processes, and information theory. He has served as a member of the Air Force Scientific Advisory Board and the Army Science Board. Dr. Brown is a Fellow of the Institute of Electrical and Electronic Engineers, and a member of the National Academy of Engineering. Tel. 937-255-3636, x4612 (DSN 785-3636, x4612), email = William.Brown@afit.af.mil

BURGGRAF, LARRY W., Burggraf, Larry W., Associate Professor of Engineering Physics, Dept. of Engineering Physics (AFIT/ENP); B.A., Chemistry, Olivet Nazarene University, 1968; MS, Chemistry, Ohio State University, 1971; M.A., Applied Mathematics, University of West Florida, 1977; Ph.D., Chemistry, University of Denver, 1981; Postdoctoral Associate, Computational Chemistry, Iowa State University, 1994. Dr. Burggraf's research applies surface physics and radiation measurements including photoluminescence spectroscopy, infrared spectroscopy, Raman spectroscopy, spectro-electrochemistry and nuclear spectrometry to solve DoD problems. Applications include chemical and biochemical detection, MEMS photothermal IR detectors, nuclear fuels detection, uranium oxide surface chemistry, chemical toxicity, and imaging radiation sources and hidden interfaces using Compton CT imaging. His surface modeling research centers on using hybrid molecular mechanics/molecular orbital models to predict surface structures for silicon, silicon carbide, silica and alumina surfaces. Tel. 937-255-3636 (DSN 785-3636) ext. 4507, email = Larry.Burggraf@afit.af.mil.

CALICO, ROBERT A., Jr., Professor of Aerospace Engineering and Dean of Graduate School of Engineering and Management (AFIT/EN), BS, University of Cincinnati, 1966; MS, University of Cincinnati, 1968; PhD, University of Cincinnati, 1971. Dr. Calico's research interests include aircraft stability and control, analytical dynamics, stability of non-linear systems, satellite dynamics, control theory, and vibration analysis. Tel. 937-255-3025 (DSN 785-3025) email = Robert.Calico@afit.af.mil

CHAMBAL, STEPHEN P., Capt, Assistant Professor of Operations Research, Department of Operational Sciences (AFIT/ENS); BS, United States Air Force Academy, 1993; MS, Arizona State University, 1994; PhD, Arizona State University, 1999. Capt Chambal's interests include modeling and simulation, reliability, availability, maintainability, design of experiments, and response surface methodology. Tel. 937-255-6565, x4314 (DSN 785-6565, x4314), email = Stephen.Chambal@afit.af.mil

CHAN, YUPO, Professor of Operations Research; Dept of Operational Sciences (AFIT/ENS); BS, Massachusetts Institute of Technology, 1967; MS, Massachusetts Institute of Technology, 1969; PhD, Massachusetts Institute of Technology, 1972. Dr. Chan's interests include transportation systems analysis, networks and combinatorial optimization, spatial-temporal analysis, traffic forecasting, multicriteria decision making, and technology assessment. He is the author of the book, "Facility Location Transportation and Land Use: Multicriteria Analysis of Spatial-Temporal Information" and also of 45 refereed publications. Dr Chan was a Congressional fellow at the office of Technology Assessment (1979-1980). He is listed in Who's Who in Aviation and Space Technology American Men and Women of Science, Who's Who in the East (among others), and is a Fellow of the American Society of Civil Engineers. Tel. 937-255-6565, x4331 (DSN 785-6565, x4331), email = Yupo.Chan@afit.af.mil

24

CHILTON, LAWERENCE K., Lt Col, Assistant Professor of Mathematics, Dept of Mathematics and Statistics, (AFIT/ENC); BA, University of California at San Diego, 1981; MS, University of Illinois at Urbana-Champaign, 1988; PhD, University of Maryland, Baltimore, 1997. Lt Col Chilton's interests include finite element analysis, h- and p- refinement, linear and nonlinear elasticity, mixed methods for nearly incompressible materials, computational electromagnetics. His recent papers have been on locking free mixed methods, mixed methods for geometrically nonlinear elasticity, and mixed methods on curvilinear elements. Tel. 937-255-3636, x4523 (DSN 785-3636, x4523), email = Lawrence.Chilton@afit.af.mil

CHRISSIS, JAMES W., Associate Professor of Operations Research, Dept of Operational Sciences (AFIT/ENS); BS, University of Pittsburgh, 1975; MS, Virginia Polytechnic Institute and State University, 1977; PhD, Virginia Polytechnic Institute and State University, 1980. Areas of interest include industrial engineering and operations research, engineering optimization, mathematical programming, stochastic systems, and simulation. Dr. Chrissis has been a member of the faculties of Virginia Polytechnic Institute and the University of South Florida. He is a member of the Institute for Operations Research and Management Sciences (InfORMS), The Society for Industrial and Applied Mathematics (SIAM), the Military Operations Research Society (MORS), and Sigma Xi. Tel. 937-255-6565, x4338 (DSN 785-656, x4338), email = James.Chrissi@afit.af.mil

COLLINS, PETER J., Maj, Assistant Professor, Dept of Electrical and Computer Engineering, (AFIT/ENG); BA, Bethel College, St. Paul Minnesota, 1985; BSEE, University of Minnesota, 1985; MSEE, Air Force Institute of Technology, 1990; PhD, Air Force Institute of Technology, 1996. Maj Collins' research interest areas include computational electromagnetics, electromagnetic radiation and scattering, radar cross section (RCS) reduction and measurement, frequency selective surfaces (FSS), antenna design and analysis, and electromagnetic design optimization techniques. He has published several papers on radiation and scattering. Tel. 937-255-6565, x4304 (DSN 785-6565, x4304), email = Peter.Collins@afit.af.mil

CROWN, JOHN S., Maj, Assistant Professor of Statistics, Dept of Mathematics and Statistics, (AFIT/ENC); BS, Midwestern State University, 1985; MS, Air Force Institute of Technology, 1991, PhD, Texas A&M University, 1997. Maj Crown's research interests include goodness-of-fit testing, reliability testing, design of experiments, probability and statistics, sequential tests of hypotheses, order statistics, maximum likelihood estimation, Bayes estimation, nonparametric density estimation, and model building. His previous assignments include officer promotion analysis and career field force structure analysis at HQ AFPC, and aircraft weapon systems reliability, maintainability, and availability analysis at HQ AFOTEC. Tel. 937-255-3636, x4513 (DSN 785-3636, x4513), email = John.Crown@afit.af.mil

D'AZZO, JOHN J., Professor Emeritus, Dept of Electrical and Computer Engineering, (AFIT/ENG); BEE, College of City of New York, 1941; MS, The Ohio State University, 1950; PhD, University of Salford, England, 1978. His research interests include guidance and control of aerospace vehicles, application of control theory to engineering systems, modal control theory, applications of flight control systems, formation flight control, digital control systems, and synthesis of multivariable control systems using digital controllers. Dr. D'Azzo is the co-author of a widely used series of textbooks on control theory. He is a Fellow of the IEEE. Tel. 937-255-3636, x4592 (DSN 785-3636, x4592), email = John.DAzzo@afit.af.mil

DECKRO, RICHARD F., Professor of Operations Research, Dept of Operational Sciences (AFIT/ENS); BS, State University of New York at Buffalo, 1972; MBA, Kent State University, 1973; DBA, Kent State University, 1976. Dr. Deckro's research and consulting interests are in the areas of applied mathematical programming and optimization, information operations, campaign planning, scheduling, network models, project management, engineering management, technology selection and management, and multi-criteria decision making. He is an Associate Editor of *Military Operations Research,* as well as a member of the editorial boards of *Computers & Operations Research,* and *IEEE Transactions on Engineering Management.* In addition to having published a number of articles and proceedings, he consults to a variety of both public and private sector organizations. Tel. 937-255-6565, x4325 (DSN 785-6565, x4325), email = Richard.Deckro@afit.af.mil

DELLA-ROSE, DEVIN J., Maj, Assistant Professor of Atmospheric Physics, Dept of Engineering Physics (AFIT/ENP); BS, Astronomy and Physics, Texas Christian University, 1985; BS, Meteorology, The Pennsylvania State University, 1987; MS, Upper Atmospheric Physics, Utah State University, 1993; PhD, Physics, Utah State University, 1999. Maj Della-Rose's research interests include: space environment modeling, geomagnetism, ionospheric electrodynamics, and magnetospheric physics. Maj Della-Rose is a member of the American Geophysical Union. Tel. 937-255-3636, x4506 (DSN 785-3636, x4506), email = Devin.Della-Rose@afit.af.mil.

DELOACH, SCOTT A., Maj, Assistant Professor of Computer Science and Engineering, Dept of Electrical and Computer Engineering (AFIT/ENG); BS, Iowa State University, 1982; MS, Air Force Institute of Technology, 1988; PhD, Air Force Institute of Technology, 1996. Maj DeLoach's research interests include artificial intelligence, multiagent systems engineering and design, automated software engineering and formal methods. Tel. 937-255-3636, x4622 (DSN 785-3636 x4622), email = Scott.DeLoach@afit.af.mil .

DELONEY, THURMON L. II, Col, Head, Department of Electrical and Computer Engineering, (AFIT/ENG); BS, North Carolina A&T State University, 1976; MS, Massachusetts Institute of Technology, 1978; PhD, Stanford University, 1987. Col Deloney's research interests are in Ballistic Missile Defense and free electron lasers. Tel. 937-255-2024 (DSN 785-2024), email= Thurmon.Deloney@afit.af.mil

ERICKSEN, WILHELM S., Professor Emeritus of Mathematics, Dept of Mathematics and Statistics, (AFIT/ENC); BA, St. Olaf College, 1936; MS, University of Wisconsin, 1939; PhD, University of Wisconsin, 1942. Dr. Ericksen's research interests include applied mathematics, differential equations, and tensor analysis. He has published on topics of elasticity of non-isotropic material, inverse pairs of test metrics, and dynamics of rigid bodies. Tel. 937-255-3636, x4419 (DSN 785-3636, x4419), email = Wilhelm.Ericksen@afit.af.mil

FRANKE, MILTON E., Professor of Aerospace Engineering, Dept of Aeronautics and Astronautics, (AFIT/ENY); BME, University of Florida, 1952; MSME., University of Minnesota, 1954; PhD, The Ohio State University, 1967. Research interests include fluid transmission lines, thrust vector control, highlift aerodynamics, fluidics, cavity acoustics, thrust augmenting ejectors, electrostatic cooling, boundary layers ground-vehicle aerodynamics, and engineering of complex systems. Dr. Franke has authored or co authored over 95 technical articles. He holds five patents, was the recipient of the AFIT Charles A. Stone Award in 1986, and the AFIT Bernard A. Schriever Award in 1993. Dr. Franke is a retired colonel in the Air Force Reserve. He is a past Vice President for Communications of the ASME (1990-1992), past Vice President for Systems and Design of the ASME (1993-1996), a Fellow of the ASME, and Associate Fellow of the AIAA. Tel. 937-255-3636, x4720 (DSN 785-3636, x4720), email = Milton.Franke@afit.af.mil

GALLAGHER, MARK A., Lt Col, Assistant Professor of Operations Research, Dept of Operational Sciences (AFIT/ENS); BS, United States Air Force Academy, 1983; MS, Air Force Institute of Technology, 1986; PhD, Air Force Institute of Technology, 1992. Lt Col Gallagher's research interests include cost analysis, military strategic effects and strategic warfare modeling. He is a Director and Prize Committee Chair of the Military Operations Research Society (MORS) and an Associate Editor of *Military Operations Research.* Lt Col Gallagher has published in *Operations Research, Management Science, Annals of Operations Research* and other journals. Tel. 937-255-6565, x4335 (DSN 785-6565, x4335), email = Mark.Gallagher@afit.af.mil

GOLTZ, MARK N., Professor of Engineering and Environmental Management, Department of Systems and Engineering Management, (AFIT/ENV); BS, Cornell University, 1972; MS, University of California, Berkeley, 1973; PhD, Stanford University, 1986. Dr. Goltz specializes in modeling the physical, chemical, and biological processes that affect the fate and transport of organic contaminants in the subsurface. He is also interested in the implementation and commercialization of innovative groundwater remediation technologies. Tel. 937-255-3636, x4638 (DSN 785-3636, x4638), email = Mark.Goltz@afit.af.mil

GRAHAM, ROBERT P., Maj, Assistant Professor of Computer Science and Engineering, Dept of Electrical and Computer Engineering (AFIT/ENG); BS, Virginia Polytechnic Institute and State University, 1986; MS, Air Force Institute of Technology, 1988; PhD, Air Force Institute of Technology, 1996. Maj Graham's research interests include automated software engineering, tabu search, formal methods and algebraic methods. Tel. 937-255-3636,x4595 (DSN 785-3636, x4595), email = Robert.Graham@afit.af.mil

GUNSCH, GREGG H., Assistant Professor of Computer Engineering, Dept of Electrical and Computer Engineering, (AFIT/ENG); BSEE, University of North Dakota, 1979; MSEE, Air Force Institute of Technology, 1983; PhD, University of Illinois, 1991. Dr. Gunsch's research interests include information survivability, information warfare, artificial intelligence, and machine learning. Tel. 937-255-6565, x4281 (DSN 785-6565, x4281), email = Gregg.Gunsch@afit.af.mil

GUSTAFSON, STEVEN C., Associate Professor of Electrical Engineering, Dept of Electrical and Computer Engineering (AFIT/ENG), BS University of Minnesota 1967, MS Duke University 1969, PhD Duke University 1974. Dr. Gustafson is an author of more than 200 publicly available technical papers, proceedings, and reports, most of which relate to optical processing and pattern recognition technology. He has been initiator and principal investigator on more than $2 million in research contracts in these areas since 1990. Tel. 937-255-3636, x4598(DSN 785-3636)x4598, email = Steven.Gustafson@afit.af.mil

HALLGREN, WAYNE F., Col, Associate Dean of the Graduate School of Engineering and Management, (AFIT/EN); BS, US Military Academy, 1975; MS, University of Florida, 1984; PhD, University of Maryland, 1990. Col Hallgren's research interests include applied aerodynamics and aircraft performance. He's an Associate Fellow in the American Institute of Aeronautics and Astronautics and a consultant to the U.S. Air Force Test Pilot School. Tel. 937-255-4372 (DSN 785-4372), email = Wayne.Hallgren@afit.af.mil

HARITOS, GEORGE K., Col, Commandant of the Air Force Institute of Technology, (AFIT/CC); BS, Applied Mechanics, University of Illinois Chicago, 1969, MS, Engineering Mechanics and Materials, University of Illinois Chicago, 1970, Ph.D., Engineering, Structural Mechanics, Northwestern University, 1978. Colonel Haritos' research interests are in the areas of: fatigue and fracture mechanics, constitutive modeling, and failure mechanisms in monolithic and multiphase materials, including fiber-reinforced composites. Colonel Haritos attended Northwestern University as a Walter P. Murphy Fellow under sponsorship by the Air Force Institute of Technology. He was designated an AFIT distinguished graduate. Colonel Haritos is an Associate Fellow of AIAA, and a member of ASME and ASEE. He has served on numerous national and international professional panels and committees, and has published over 35 technical journal articles. Tel. 937-255-2321(DSN 785-2321), email = George.Haritos@afit.af.mil

HARTRUM, THOMAS C., Associate Professor of Electrical Engineering, Dept of Electrical and Computer Engineering, (AFIT/ENG); BEE, The Ohio State University, 1969; MS, The Ohio State University, 1969; M.B.A., Wright State University, 1979; PhD, The Ohio State University, 1973. Dr. Hartrum's research interests include parallel and distributed computing, and formal methods in software engineering. He has authored or co-authored over 20 conference and journal articles. He is currently conducting research in object-oriented modeling and formal methods in software engineering. He is a member of the IEEE. Tel. 937-255-3636, x4581 (DSN 785-3636, x4581), email = Thomas.Hartrum@afit.af.mil

HENGEHOLD, ROBERT L., Professor of Physics and Head, Dept of Engineering Physics, (AFIT/ENP); A.B., Thomas More College, 1956; MS, University of Cincinnati, 1961; PhD, University of Cincinnati, 1965. Professor Hengehold's research areas center around experimental solid state physics, semiconductor physics, optical diagnostics and electron and laser spectroscopy. He is the author of over 60 archival publications and over 150 presentations at technical meetings. He has served as advisor on over 15 doctoral dissertations and 75 master's theses. He is currently carrying out studies of (1) compound semiconductor materials and superlattice structures for mid-infrared diode lasers and detectors using hot electron spectroscopy, and (2) wide bandgap semiconductors for UV detectors using cathodo- and photo-luminescence. This work involves collaborative efforts with the Directed Energy and Sensors Directorates of AFRL and the MIT Lincoln Laboratory. Tel. 937-255-2012 (DSN 785-2012), email = Robert.Hengehold@afit.af.mil

HILL, RAYMOND R., Lt Col, Assistant Professor of Operations Research, Dept of Operational Sciences (AFIT/ENS); BS, Mathematics, Eastern Connecticut State University, 1983; MS, Air Force Institute of Technology, 1988; PhD, The Ohio State University, 1996. Maj Hill's research interests include simulation and optimization with ongoing funded research performed for multiple AF Battlelabs, Air Staff agencies, Logistics Management Agency, and AFRL/HES. Tel. 937-255-6565, x4327 (DSN 785-6565, x4327), email = Raymond.Hill@afit.af.mil

HOLT, DANIEL T., Capt, Instructor of Engineering and Environmental Management, Department of Systems and Engineering Management, (AFIT/ENV); BS, Electrical Engineering, University of Louisville, 1989; MA, Human Resource Development, Webster University, 1993; MS, Air Force Institute of Technology, 1995. Research interests include environmental attitudes, organizational change and transformation, human personality and emotions, and survey development. Tel. 937-255-3636, x4574 (DSN 785-3636, x4574), email = Daniel.Holt@afit.af.mil

HOUPIS, CONSTANTINE H., Professor Emeritus, Dept of Electrical and Computer Engineering, (AFIT/ENG); BS, University of Illinois, 1947; MS, University of Illinois, 1948; PhD, University of Wyoming, 1971. His research interests include guidance and control of aerospace vehicles, application of optimal control theory to engineering systems, flight control systems, digital control systems, computational and numerical methods for control system design, linear and nonlinear control theory, multivariable theory, and quantitative feedback theory. Professor Houpis has published numerous technical articles and textbooks. He is a registered professional engineer and a Fellow of the IEEE. Tel. 937-255-3636, x4615 (DSN 785-3636, x4615), email = Constantine.Houpis@afit.af.mil

HUFFINES, GARY R., Maj, Instructor of Atmospheric Physics, Dept of Engineering Physics, (AFIT/ENP); BS, Ohio Northern University, 1983; MS, Utah State University, 1990; PhD Candidate, Texas A&M University, current. Major Huffines' research interests are focused on atmospheric electricity with an emphasis on the characteristics of cloud-to-ground lightning. He is currently working on completing his doctoral program at Texas A&M with an expected completion time of April 1999. He has written two journal articles and has one conference presentation. Tel. 937-255-3636, x4511 (DSN 785-3636, x4511), email = Gary.Huffines@afit.af.mil

28

JACOBS, TIMOTHY M., Maj, Assistant Professor of Computer Science and Engineering, Dept of Electrical and Computer Engineering (AFIT/ENG); BS, Air Force Academy, 1983; MS, Boston University, 1989, MS, Air Force Institute of Technology, 1991; PhD, University of Utah, 1998. Major Jacobs' primary research interests are information and software visualization, virtual environments, computer graphics, and software engineering. He is interested in using these technologies to facilitate complexity management and understanding of advanced applications in software development, computer aided engineering, decision-support, cooperative work, planning and analysis, and battlefield management. Tel. 937-255-6565, x4279 (DSN 785-6565, x4279), email = Timothy.Jacobs@afit.af.mil.

JACQUES, DAVID R., Maj, Assistant Professor of Aerospace Engineering, Dept of Aeronautics and Astronautics (AFIT/ENY); BSME, Lehigh University, 1983; MSAE, Air Force Institute of Technology, 1989; PhD, Air Force Institute of Technology, 1995. Maj Jacques' primary research is in the field of stability and control of air and space vehicles. He has published several papers on constrained optimal control synthesis, and co-authored a software toolbox that utilized his synthesis techniques. He is interested in the large space structure problem, as well as challenging autopilot design problems for aircraft and missiles. Maj Jacques is also interested in the general area of optimal design for aerospace systems. Maj Jacques' previous assignment was a Research Engineer and Program Manager at the Munitions Directorate of the Air Force Research Lab (AFRL), Eglin AFB, FL. While assigned to AFRL, Maj Jacques was awarded the 1998 HQ USAF Science and Technology Award for Research and Development. Tel. 937-255-3636, x4641 (DSN 785-3636, x4641), email = David.Jacques@afit.af.mil

JODOIN, VINCENT J., Maj, Assistant Professor of Nuclear Engineering, Department of Engineering Physics, (AFIT/ENP); BSNE, Rensselaer Polytechnic Institute, 1985; MSEE, California State University, 1988; MSNE and PhD, Air Force Institute of Technology, 1989 and 1994. Major Jodoin's interests center around nuclear weapon effects and countering nuclear weapon proliferation. He has been associated with nuclear weapon issues since 1985. He was a member of the first operational test and evaluation team for the B-2 bomber with Strategic Air Command, was a nuclear science and technology analyst for the Air Force Technical Applications Center, and has managed nuclear and counterproliferation research studies for AF/XONP and DTRA. His current research interests are nuclear weapon fallout and nuclear proliferation modeling. He is a registered Professional Engineer. Tel. 937-255-3636, x4506 (DSN 785-3636, x4506), email = Vincent.Jodoin@afit.af.mil.

JOHN, GEORGE, Professor Emeritus of Nuclear Engineering, Dept of Engineering Physics, (AFIT/ENP); B.Sc., Ohio State University, 1948; PhD, Ohio State University, 1952. Professor John's research areas are applications of nuclear radiation and radionuclides to problems in science and engineering . This includes applications of Mössbauer spectrometry to problems in materials sciences, analysis of radionuclides in the environment, development of nuclear radiation detectors and general techniques for detecting and analyzing nuclear radiation . Current research emphases are on applications of Mössbauer Spectrometry in the development of lubricants in collaboration with the Materials Laboratory at WPAFB. Other areas of interest are: the natural radiation background, and Health Physics. Tel. 937-255-3636 Ext. 4837 (DSN 785-3636 Ext. 4837), email = George.John@afit.af.mil

KABRISKY, MATTHEW, Professor Emeritus, Dept of Electrical and Computer Engineering, (AFIT/ENG); BEE, Polytechnic Institute of Brooklyn, 1951; MEE, Polytechnic Institute of Brooklyn, 1952; PhD, University of Illinois, 1964. His areas of expertise include information processing in the human central nervous system, and mathematical models of the man machine interface. Dr. Kabrisky is the author and co-author of two books and 60 technical articles. He has chaired over 100 theses and dissertations in his 30+ years in the Department. Tel. 937-255-3636, x4541 (DSN 785-3636, x4541), email = Matthew.Kabrisky@afit.af.mil

KELSO, T. S., Col, Assistant Professor of Space Operations and Vice Commandant (AFIT/CV); BS, US Air Force Academy, 1976; MBA, University of Missouri-Columbia, 1978; MS, Air Force Institute of Technology, 1982; PhD, The University of Texas at Austin, 1988. Col Kelso's research interests include orbital mechanics, astrodynamics, remote sensing, satellite image processing, space operations, and computer simulation. He was the recipient of the AFIT Bernard A. Schriever Award in 1994 and is a Senior Member of the AIAA and a Member of the AAS. Col Kelso's previous assignment was as Associate Director for Research at Air University. Tel. 937-255-4372 (DSN 785-4372), email = Thomas.Kelso@afit.af.mil

KING, PAUL I., Associate Professor of Aerospace Engineering, Dept of Aeronautics and Astronautics, (AFIT/ENY); BS, Arizona State University, 1971; MS, Air Force Institute of Technology, 1972; PhD, Oxford University, England, 1986. Dr. King's research interests include fluid dynamics and heat transfer (turbomachinery and other applications). His research emphasizes experimentation and instrumentation. Tel. 937-255-3636, x4628 (DSN 785-3636, x4628), email = Paul.King@afit.af.mil

KLOEBER, JACK M., Jr., Lt Col, US Army, Associate Professor of Operations Research, Dept of Operational Sciences (AFIT/ENS); BS, Lehigh University, 1977; MS, Lehigh University, 1988; PhD, Georgia Institute of Technology, 1995. LTC Kloeber's research interests lie in the decision analysis area of operations research. Included in this general area are economic decision analysis, military/operational analysis, environmental technology decision analysis, resource allocation, and developing metrics for vague and ill-defined system elements. He teaches the decision analysis sequence in the department. Tel. 937-255-6565, 4336 (DSN 785-6565, x4336), email = Jack.Kloeber@afit.af.mil

KRAMER, STUART C., Lt Col, Associate Professor of Aerospace and Systems Engineering, Dept of Aeronautics and Astronautics (AFIT/ENY); BSEE, Colorado State University, 1976; MSSE, Air Force Institute of Technology, 1978; PhD, University of California at San Diego, 1984. Dr. Kramer's primary research is in the field of nonlinear and stochastic systems analysis. He is also very interested in general systems theory and its application to systems engineering and real-world problems. Lt Col Kramer chairs the graduate systems engineering program at AFIT. Author of several papers, he also holds a patent for an aircraft ejection seat design. Tel. 937-255-6565,x4318 (DSN 785-6565, x4318), email = Stuart.Kramer@afit.af.mil

LAIR, ALAN V., Professor of Mathematics and Head, Dept of Mathematics and Statistics, (AFIT/ENC); BA, North Texas State University, 1970; MS, Texas Tech University, 1972; PhD, Texas Tech University, 1976. Dr. Lair's research interests include parabolic and elliptic partial differential equations, functional analysis, applied mathematics, and nonlinear diffusion. Dr. Lair has published several papers on the properties of solutions of various nonlinear equations. Tel. 937-255-3636, x4519 (DSN 785-3636, x4519), email = Alan.Lair@afit.af.mil

LAMONT, GARY B., Professor of Electrical and Computer Engineering , Dept of Electrical and Computer Engineering, (AFIT/ENG); B. of Physics, 1961; MSEE, 1967, PhD, 1970; University of Minnesota. His research interests include: parallel/distributed computation, combinatorial optimization problems, formal methods, software engineering, digital signal processing, analog and digital control systems, intelligent and distributed control systems, computational and numerical methods, evolutionary computation, and computer-aided design. Dr. Lamont has authored a textbook as well as over 100 papers on the above topics and on educational techniques. He has chaired over 200 MS theses and 25 PhD dissertations. Dr. Lamont was an engineering systems analyst for the Honeywell Corp. for six years. Tel. 937-255-3636, x4718 (DSN 785-3636, x4718), email = Gary.Lamont@afit.af.mil

LANNING, JEFFREY W., Maj, Assistant Professor of Operations Research, Dept of Operational Sciences (AFIT/ENS); BS, United States Air Force Academy, 1988; MS, Air Force Institute of Technology, 1993; PhD, Arizona State University, 1998. Maj Lanning's interests include statistical aspects of simulation, design of experiments, response surface methodology, multivariate statistics, statistical process monitoring, time series analysis and forecasting. Tel. 937-255-6565, x4324 (DSN 785-6565, x4324), email = Jeffrey.Lanning@afit.af.mil

LAPUMA, PETER T., Maj, Assistant Professor of Engineering and Environmental Management, Department of Systems and Engineering Management, (AFIT/ENV); BS, Mechanical and Industrial Engineering, Clarkson University, 1986; Master of Business Administration, Wright State University, 1991; MS, Engineering and Environmental Management, Air Force Institute of Technology 1994; PhD, Environmental Engineering Sciences, University of Florida, 1998. Major LaPuma's research interests include probabilistic risk assessment, chromated primer paint toxicity and pollution prevention modeling. His previous assignments include Director of Industrial Hygiene and environmental research engineer. Tel. 937-255-6565 x4319 (DSN 785-6565) x4319, email = Peter.Lapuma@afit.af.mil

LARGENT, CRAIG C., Maj, Assistant Professor of Engineering Physics, Dept of Engineering Physics, (AFIT/ENP); BS, Northwestern University, 1988; MS, Stanford University, 1989; PhD, University of Florida, 1996. Major Largent's research interests include semiconductor lasers and their applications. He teaches classes in the areas of Optics, Infrared Technology, and Remote Sensing. During the summer of 1999, Major Largent worked for Professor Richard Zare as a Visiting Scholar in the Department of Chemistry at Stanford University, Palo Alto, CA. He assisted in the development of new cavity ring-down spectroscopy techniques useful for measuring the absolute concentrations of absorbing species. He has advised 1 MS student during his time on the AFIT faculty. Tel. 937-255-3636, x4505 (DSN 785-3636, x4505), email = Craig.Largent@afit.af.mil

LIEBST, BRADLEY S., Professor of Aerospace Engineering and Head, Dept. of Aeronautics and Astronautics, (AFIT/ENY); BS, Wichita State University, 1978; MS, Massachusetts Institute of Technology, 1979; PhD, Massachusetts Institute of Technology, 1981. Dr. Liebst's research interests include eigenstructure assignment and control, stability and control of aerospace vehicles, passive and active control of large flexible structures, aircraft handling qualities. He has published over 30 articles and reports and chaired over 40 thesis and dissertations. Prior to teaching at AFIT, Professor Liebst was Assistant Professor of Aerospace Engineering for 6 years at the University of Minnesota where he was voted the 1987 Best Institute of Technology (U of M) Professor. Tel. 937-255-3636 x4636 (DSN 785-6565, x4636), email = Bradley.Liebst@afit.af.mil

LITTLE, JEFFREY K., Lt Col, Assistant Professor of Aerospace Engineering and Deputy Head, Dept. of Aeronautics & Astronautics (AFIT/ENY); BS Mechanical Engineering, Auburn Univ., 1982; MS Mechanical Engineering, Univ of Tennessee, 1988, PhD, Aerospace Engineering, Pennsylvania State Univ, 1996. Lt Col Little's research interests center around propulsion systems modeling including the introduction of molecular dynamics to combustion simulations. He has published articles related to supercritical evaporation and parallel processing of molecular dynamics, and is a member of AIAA and ASEE. Tel. 937-255-3636 x4723 (DSN 785-3636 x4723), email-Jeffrey.Little@afit.af.mil

LOTT, JAMES A., Maj, Associate Professor of Electrical Engineering and Deputy Head, Dept of Electrical and Computer Engineering (AFIT/ENG); BSEECS, University of California at Berkeley, 1983; MSEE, Air Force Institute of Technology, 1987; PhD, University of New Mexico at Albuquerque, 1993. Maj Lott's research interests include microelectronics, photonics, micro-electro-mechanical systems (MEMS), and computational nanoelectronics. His areas of expertise include epitaxial crystal growth, micro-fabrication, semiconductor physics and device design, and device characterization. Maj Lott received a 1990 Air Force Basic Research Award, a 1994 R&D 100 Award, and the 1999 IEEE Dayton Section Dr. H. V. Noble Award. He is a Senior Member of the IEEE, author or co-author of over 100 refereed archival journal and conference papers, and holds three patents. Tel. 937-255-3636, x 4576 (DSN 785-3636, x4576), email = James.Lott@afit.af.mil

MAGEE, ERIC P., Maj, Assistant Professor of Electrical Engineering, Dept. of Electrical and Computer Engineering (AFIT/ENG); B.S.E., Grove City College, 1987; M.S.E.E., Air Force Institute of Technology, 1993; PhD, The Pennsylvania State University, 1998. Maj Magee's research interests include laser remote sensing (LIDAR/LADAR), coherent laser radar, adaptive optics, atmospheric optics, and optical space surveillance. His areas of expertise are communication theory, electro-optics, and linear systems. Tel. 937-255-3636, x4614 (DSN 785-3636)x4614, email = Eric.Magee@afit.af.mil

MALL, SHANKAR, AFRL Professor, Dept. of Aeronautics and Astronautics, (AFIT/ENY); BS, Mechanical Engineering, Banaras Hindu University, India, 1964; MS, Mechanical Engineering, Banaras Hindu University, 1966; PhD, Mechanical Engineering, University of Washington, 1977. Dr. Mall's research centers on composite and smart materials, fatigue and fracture. Dr. Mall has authored over 100 papers and has been the co-editor of a book and five conference proceedings. He is a Fellow of ASME, Associate Fellow of AIAA. He is also the Principal Materials Research Engineer, Materials and Manufacturing Directorate, Air Force Research Laboratory. He is associate editor of several journals also. Tel. 937-255-3636, x4587 (DSN 785-3636, x4587), email = Shankar.Mall@afit.af.mil

MARCINIAK, MICHAEL A., Lt Col, Assistant Professor of Physics, Dept of Engineering Physics (AFIT/ENP); BS, St. Joseph's College, 1981; B.S.E.E., University of Missouri, 1983; M.S.E.E., Air Force Institute of Technology, 1987; PhD, Air Force Institute of Technology, 1995. Lt Col Marciniak's research interests include material characterization of narrow-gap semiconductors for mid-infrared opto-electronic devices, and characterization of wide-bandgap, optically activated, high-power semiconductor devices. His previous assignments include the high-power semiconductor laser program at the Air Force Research Laboratory (AFRL), Kirtland AFB, NM, and the More Electric Aircraft program at AFRL, Wright-Patterson AFB, OH. Tel. 937-255-3636 (DSN 785-3636) ext. 4529, email= Michael.Marciniak@afit.af.mil

MATHEWS, KIRK A., Associate Professor of Nuclear Engineering, Dept of Engineering Physics, (AFIT/ENP); BS, California Institute of Technology, 1971; MS, Air Force Institute of Technology, 1982; PhD, Air Force Institute of Technology, 1983. Professor Mathews' research interests center on computational methods for neutral particle radiation transport, and include nuclear weapons effect simulation, and deconvolution of radiation spectra. Dr. Mathews has published 11 papers in referred journals and 14 conference proceedings, and has chaired 28 theses and 5 dissertations. He is a member of Tau Beta Pi. Tel. 937-255-3636, x4508 (DSN 785-3636, x4508), email = Kirk.Mathews@afit.af.mil

MAYBECK, PETER S., Professor of Electrical Engineering, Dept of Electrical and Computer Engineering, (AFIT/ENG); BS, Massachusetts Institute of Technology, 1968; PhD, Massachusetts Institute of Technology, 1972. Professor Maybeck's research interests include optimal estimation and stochastic control, Kalman filtering, adaptive estimation, pointing and tracking, optimally aided inertial navigation systems, multiple model adaptive filtering. He is the author of the widely recognized three-volume reference text, *"Stochastic Models, Estimation and Control"* and of over 100 technical articles. Dr. Maybeck has received numerous national and local awards including the C. Holmes MacDonald Distinguished Young Electrical Engineering Teacher and the ASEE Frederick Emmons Terman Award as the outstanding Electrical Engineering Professor in the US for 1985. He is a Fellow of the IEEE. Tel. 937-255-3636, x4639 (DSN 785-3636, x4639), email = Peter.Maybeck@afit.af.mil

McINTYRE, GREGORY A., Lt Col, Assistant Professor of Operations Research, Dept of Operational Sciences (AFIT/ENS); BA, Washburn University, 1981; MS, Air Force Institute of Technology, 1986; PhD, George Mason University, 1999. Lt Col McIntyre's interests include simulation, genetic algorithms, neural networks, sensor management, and combat modeling. Tel. 937-255-6565, x4323 (DSN 785-6565, x4323), email = Greg.Mcintyre@afit.af.mil

MILLER, JOHN O., Lt Col, Assistant Professor of Operations Research, Dept of Operational Sciences (AFIT/ENS); BS, United States Air Force Academy, 1980; MBA University of Missouri at Columbia, 1983; MS, Air Force Institute of Technology, 1987; PhD, The Ohio State University, 1997. Lt Col Miller's interests include simulation, ranking and selection, complex adaptive systems, and nonparametric statistics. Tel. 937-255-6565, x4326 (DSN 785-6565, x4326), email = John.Miller@afit.af.mil

MILLER, MIKEL M., Lt Col, Assistant Professor of Electrical Engineering, Dept. of Electrical and Computer Engineering (AFIT/ENG); B.S.E.E. North Dakota State University, Fargo North Dakota, 1982; M.S.E.E., Air Force Institute of Technology, 1987; PhD, Air Force Institute of Technology, 1998. Lt Col Miller's areas of interest include optimal estimation, adaptive estimation, Kalman filtering, multiple model adaptive estimation, optimal inertial navigation integration with the Global Positioning System (GPS) for both existing navigation systems and MEMS-based navigation systems, electromagnetic interference and mitigation techniques affecting GPS receiver performance, and autonomous vehicle navigation, control, and guidance. Tel. 937-255-6565, x4278 (DSN 785-6565)x 4278, email = Mikel.Miller@afit.af.mil

MINER, CECILIA A., Lt Col, Assistant Professor of Atmospheric Physics, Dept of Engineering Physics, (AFIT/ENP); BS Mathematics, Mississippi State University, 1978; MS Atmospheric Science, Colorado State University, 1984; PhD Meteorology, Texas A&M University, 1989. Lt Col Miner's research interests include upper tropospheric energy transport and applications of synoptic meteorology. She has published in the areas of ionospheric sounding, typhoons, tropical upper tropospheric waves, and aviation weather. Lt Col Miner is a member of the American Meteorological Society and the National Weather Association. Tel. 937-255-3636, x4645 (DSN 785-3636, x 4645), email = Cecilia.Miner@afit.af.mil

MOORE, ALBERT H., Professor Emeritus, Dept of Mathematics and Statistics, (AFIT/ENC); BME, Pratt Institute, 1942; MS, New York University, 1949; PhD, Ohio State University, 1972. Dr. Moore's interests include order statistics, maximum likelihood estimation, Bayes estimation, numerical solution of partial differential equations, admissible estimators, adaptive robust estimation, sequential tests of hypotheses, confidence limits for system reliability, nonparametric density estimation, goodness-of-fit tests, military operations research, stochastic processes, applied mathematics, numerical analysis, operations research, probability and statistics, design of experiments, and maintainability. Tel. 937-255-3636, x4520 (DSN 785-3636, x4520), email = Albert.Moore@afit.af.mil

MOORE, JAMES T., Associate Professor of Operations Research, Dept of Operational Sciences (AFIT/ENS); BA University of Colorado, 1974; M.BA University of Wyoming, 1978; MS, Air Force Institute of Technology, 1981; PhD, The University of Texas at Austin, 1988. Dr. Moore's interests include optimization theory, mathematical programming, integer programming, bilevel programming, heuristics, and algorithmic development. He is the author or co-author of nine technical articles. Tel. 937-255-6565, x4337 (DSN 785-6565, x4337), email = James.Moore@afit.af.mil

MURDOCK, W. PAUL, Maj, Assistant Professor of Operations Research, Dept of Operational Sciences, (AFIT/ENS); BSEET, Bluefield State College, 1982; MS, Air Force Institute of Technology, 1987; PhD, Virginia Polytechnic Institute and State University, 1995. Maj Murdock's areas of interest include stochastic processes, renewal theory, maintainability, reliability, preventive maintenance planning and optimization, decision analysis and supporting systems, and simulation and statistical output analysis. Tel. 937-255-6565, x4339 (DSN 785-6565, x4339), email = William.Murdock@afit.af.mil

NIXON, WM. BRENT, Lt Col, Associate Professor of Engineering and Environmental Management and Head of the Department of Systems and Engineering Management (AFIT/ENV); BS, Mechanical Engineering, University of Cincinnati, 1981; MBA, Management, Barry University, 1983; PhD, Civil Engineering, University of South Florida, 1995. Lt Col Nixon's research interests include solid and hazardous waste management; long-term performance of landfills; environmental/financial/technological risk management and planning. His previous assignments include environmental and developmental program management for beddown of the F-117A "Stealth" fighter and other advanced weapons systems. Tel. 937-255-2998 (DSN 785-2998), email = William.Nixon@afit.af.mil

OXLEY, MARK E., Associate Professor of Mathematics, Dept of Mathematics and Statistics, (AFIT/ENC); BS, Cumberland College, 1978; MS, Purdue University, 1980; PhD, North Carolina State University, 1987. Dr. Oxley's interests include partial differential equations, free and moving boundary value problems, finite time extinction problems, functional analysis, optimization, numerical analysis, artificial neural networks, groundwater modeling, and wavelet analysis. Several of his students have written theses related to optimal remediation of pump-and-treat systems. Others have been related to binaural listening. Dr. Oxley currently is funded by AFOSR to work on data reduction techniques related to materials processing. Tel. 937-255-3636, x4515 (DSN 785-3636, x4515), email = Mark.Oxley@afit.af.mil

PACHTER, MEIR, Professor, Dept of Electrical and Computer Engineering, (AFIT/ENG); BS, Israel Institute of Technology, 1967; MS, Israel Institute of Technology, 1969; PhD, Israel Institute of Technology, 1975. Dr. Pachter's fields of expertise include automatic control of aircraft and missiles, adaptive control and system identification, inertial and GPS Navigation, autonomous control/neural networks/fuzzy logic control, nonlinear control and applied mathematics. Dr. Pachter has published papers in these areas and in differential games, robotics, and the theory of computational geometry. Tel. 937-255-3636, x4593 (DSN 785-3636, x4593), email = Meir.Pachter@afit.af.mil

PALAZOTTO, ANTHONY N., Professor of Aerospace Engineering, Dept of Aeronautics and Astronautics, (AFIT/ENY); BS, New York University, 1955; MS, Brooklyn Polytechnic Institute, 1961; PhD, New York University, 1968. Professor Palazotto's interests include nonlinear mechanics, shell analysis, finite elements, composite materials, viscoplasticity and nonlinear dynamics. Dr. Palazotto is the co-author of a textbook, "The Nonlinear Analysis of Shell Structures," published in 1992 by the AIAA. In addition he has authored over 145 archival technical publications and more than 300 technical reports and manuscripts. Dr. Palazotto received the Hetanyi Award in 1982 from the Society of Experimental Mechanics, the Cleary Award in 1981 from the Air Force Materials Lab, and the Structures & Materials Award from the ASCE in 1986. Dr. Palazotto is a Fellow of the ASCE and an Associate Fellow of the AIAA. He is a registered Professional Engineer. Tel. 937-255-3636, x4599 (DSN 785-3636, x4599), email = Anthony.Palazotto@afit.af.mil

PERRAM, GLEN P., Lt Col, Professor of Physics, Dept of Engineering Physics, (AFIT/ENP); BS, Cornell University, 1980; MS, Air Force Institute of Technology, 1981; PhD, Air Force Institute of Technology, 1986. Lt Col Perram's research interests include high power chemical lasers, including the Chemical Oxygen-Iodine Laser and the Airborne Laser, infrared gas-phase lasers for counter-measure missions, reaction kinetics, atomic and molecular spectroscopy, environmental science, photochemistry, molecular dynamics, optical diagnostics, and remote sensing. He has advised 7 PhD and 22 MS students, received 12 research grants and published over 60 papers during his eleven years on the AFIT faculty. Tel. 937-255-3636, x4504 (DSN 785-3636, x4504), email = Glen.Perram@afit.af.mil.

POTOCZNY, HENRY B., Professor of Computer Science, Dept of Electrical and Computer Engineering, (AFIT/ENG); BA, La Salle University, 1965; MA, University of Kentucky, 1967; PhD, University of Kentucky, 1969. Dr. Potoczny's interests include graph theory, algorithm analysis, computing science, and, most recently, computer and data security, including cryptology, steganography, and quantum cryptology. Tel. 937-255-6565, x4282 (DSN 785-6565, x4282), email = Henry.Potoczny@afit.af.mil

PYATI, VITTAL P., Professor of Electrical Engineering, Dept of Electrical and Computer Engineering, (AFIT/ENG); B.E., University of Madras, India, 1953; MSEE, Marquette University, 1962; PhD, Electrical Engineering, University of Michigan, 1966. Dr. Pyati's fields of expertise include electromagnetics, radar, low observables, and electronic warfare. Dr. Pyati has authored over 40 publications in journals and DOD Conferences. He has been a consultant to various Air Force organizations. Tel. 937-255-3636, x4620 (DSN 785-3636, x4620), email = Vittal.Pyati@afit.af.mil

QUINN, DENNIS W., Professor of Mathematics, Dept of Mathematics and Statistics, (AFIT/ENC); BA, Mathematics, University of Delaware, 1969; MS, Applied Mathematics, University of Delaware, 1971; PhD, Applied Mathematics, University of Delaware, 1973. Dr. Quinn's fields of expertise include numerical methods, finite elements, finite differences, integral equation methods, numerical analysis, functional analysis, system identification, and applied mathematics. Dr. Quinn has advised several MS thesis students in modeling toxic chemical exposure. Dr. Quinn has published papers dealing with integral and finite element solutions of acoustic problems, using the telegrapher's equation to model lightning, using the method of characteristics in cancer risk assessment, using the diffusion equation to model diffusion through the skin in pharmacokinetic modeling and using the boundary element method for moving boundary problems. Tel. 937-255-3636, x4522 (DSN 785-3636, x4522), email = Dennis.Quinn@afit.af.mil

RAINES, RICHARD A., **Maj**, Associate Professor of Electrical Engineering and Chief, Computer Science and Engineering Division, Dept of Electrical and Computer Engineering (AFIT/ENG), BSEE, Florida State University 1985, MS Computer Engineering, Air Force Institute of Technology, 1987, PhD, Virginia Polytechnic Institute and State University, 1994. His research interests include parallel and distributed processing systems, computer communication networks, satellite communications, and performance modeling, analysis and simulation of real-time communication systems. Tel. 937-255-3636, x4715 (DSN 785-3636, x4715), email = Richard.Raines@afit.af.mil

RAQUET, JOHN F., **Capt**, Assistant Professor of Electrical Engineering, Dept of Electrical and Computer Engineering (AFIT/ENG); BS, US Air Force Academy, 1989; MS Massachusetts Institute of Technology, 1991; PhD, University of Calgary, Canada, 1998. Capt Raquet's areas of interest include advanced Global Positioning System (GPS) receiver technology, GPS networks and warfare, autonomous vehicle navigation and control, digital GPS processing algorithms, MEMS-based navigation systems, and electromagnetic interference and mitigation techniques affecting GPS performance. Tel. 937-255-3636, x4580 (DSN 785-3636)x4580, email = John.Raquet@afit.af.mil

REID, THOMAS F., **Maj**, Assistant Professor of Statistics, Department of Mathematics and Statistics, (AFIT/ENC); BS, University of Oklahoma, 1982; MS, Air Force Institute of Technology, 1987; PhD, University of North Carolina, 1997. Maj Reid's research interests include design of communications networks and simulation. Tel. 937-255-3636, x4516 (DSN 785-3636, x4516), email = Thomas.Reid@afit.af.mil

REYNOLDS, DANIEL E., Assistant Professor of Statistics, Dept of Mathematics and Statistics, (AFIT/ENC); AB, University of Rochester, 1965; MS, Air Force Institute of Technology, 1971; MS, Wright State University, 1983. Research interests include management cybernetics, learning theory, and exploring ways computer graphics can support statistical and mathematical education. In 1989, Professor Reynolds received Tau Beta Phi's Outstanding Professor Award. Tel. 937-255-3636, x4526 (DSN 785-3636, x4526), email = Daniel.Reynolds@afit.af.mil

RIES, HEIDI R., Associate Professor of Physics, Dept of Engineering Physics (AFIT/ENP) and Associate Dean for Research (AFIT/ENR); BS, Physics, The Ohio State University, 1982; MS, Physics, The Ohio State University, 1984; PhD, Applied Physics, Old Dominion University, 1987. Dr. Ries' research interests include nonlinear optical materials, electron paramagnetic resonance spectroscopy, and laser processing of materials. Tel. 937-255-3636, x4544 (DSN 785-3636 x4544) email = Heidi.Ries@afit.af.mil

ROH, WON B., Professor of Engineering Physics, Dept of Engineering Physics, (AFIT/ENP); BS, Seoul National University, 1964; MS, The Ohio State University, 1968; PhD, The Ohio State University, 1973. Professor Roh's research interests span technology areas covering lasers, optics, laser spectroscopy, and nonlinear optics. The applications of the technology areas include laser coupling, image processing, phase conjugation, chemical kinetics, and optical diagnostics. Professor Roh's research is currently funded by the Air Force Office of Scientific Research. He has advised 5 PhD and over 41 MS students during his 20 years on AFIT faculty, and published over 40 papers. He is the recipient of the Gage H. Crocker Outstanding Professor Award. Tel. 937-255-3636, x4509 (DSN 785-3636 x4509), email = Won.Roh@afit.af.mil

SHELLEY, MICHAEL L., Associate Professor of Engineering and Environmental Management, Department of Systems and Engineering Management (AFIT/ENV); BCE, Auburn University, 1974; MS, Virginia Tech, 1975; PhD, Environmental Science and Engineering, University of North Carolina, 1985. Dr Shelley focuses on system dynamics modeling in analyzing long-term management strategies. Publications have included physiologically based pharmacokinetic modeling for risk assessment as well as ecological engineering design, addressing optimization and cost of environmental program management. Current work includes effects of combat stress on susceptibility to chemical exposure, constructed wetland design to optimize environmental compliance and ecosystem management, and systems analysis of long term outsourcing & privatization impacts on wartime readiness. Tel. 937-255-3636, x4594 (DSN 785-3636, x4594), email = Michael.Shelley@afit.af.mil

SMITH, E. PRICE, Lt Col, Assistant Professor of Aerospace and Systems Engineering, Dept of Aeronautics and Astronautics, (AFIT/ENY); BSEE, Virginia Polytechnic Institute and State University, 1982; MS, Systems Engineering, AFIT, 1987; PhD, Industrial and Systems Engineering, Virginia Polytechnic Institute and State University,. Lt Col Smith's research interests include developing new algorithms for solving global nonconvex optimization problems, and systems engineering. Lt Col Smith has previously been assigned to HQ USCENTCOM as the Deputy Science Advisor, and to the HQ Air Force Operational Test and Evaluation Center and the Aeronautical Systems Center as a test engineer for electronic warfare, flight simulator, and communications systems. Tel. 937-255-6565, x43180 (DSN 785-6565, x4318), email = Price.Smith@afit.af.mil

SPENNY, CURTIS H., Associate Professor of Aerospace and Systems Engineering, Dept of Aeronautics and Astronautics, (AFIT/ENY); BSME, University of Cincinnati, 1964; MS, Engineering, UCLA, 1966; PhD, Analytical Mechanics, Harvard University, 1973. Dr. Spenny's research interests include vehicle dynamics and control, robotics, man-in-the-loop control and systems engineering. Dr. Spenny has prior experience at Hughes Aircraft, NASA and the U.S. Department of Transportation, and is a registered professional engineer in the State of Ohio. Tel. 937-255-6565, x4320 (DSN 785-6565, x4320), email = Curtis.Spenny@afit.af.mil

SUSALLA, MICHAEL, Cdr. USN, Instructor of Nuclear Engineering, Dept of Engineering Physics (AFIT/ENP); BS, Marine Engineering, U.S. Naval Academy, 1979; MS, Physics (Nuclear Weapons & Effects), Naval Postgraduate School, 1988. Cdr Susalla's research interests include reactor operations and nuclear weapons effects. Tel. 937-255-3636, x4506 (DSN 785-3636, x4506), email = Michael.Susalla@afit.af.mil

TALBERT, MICHAEL L., Maj, Assistant Professor of Computer Science, Dept of Electrical and Computer Engineering (AFIT/ENG); BS, Meteorology, North Carolina State University, 1985; MS Computer Information Systems, Air Force Institute of Technology, 1988; PhD, Computer Science and Applications, Virginia Polytechnic Institute and State University, 1995. Maj Talbert's research interests include database management systems, content-based visual information retrieval, and data mining. Tel. 937-255-6565, x4280 (DSN785-6565 x4280), email = Michael.Talbert@afit.af.mil

TEMPLE, MICHAEL A., Maj, Assistant Professor of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); BSE, Southern Illinois University, 1985; MSE, Southern Illinois University, 1986; PhD, Air Force Institute of Technology, 1993. Maj Temple's research interests include electromagnetic propagation phenomenology, Adaptive and Interferometric Clutter Erasure (ACE/ICE), High Range Resolution (HRR) radar, precision emitter location, digital and spread spectrum communications, and complex waveform generation and analysis. His sponsored research efforts in Command, Control, Communications and Intelligence (C^3I), radar signal/signature processing, and Electronic Warfare (EW), as adopted by and/or transitioned to DoD and other national agencies, has provided nearly $600K in research and technology benefits. Tel. 937-255-3636, x4703 (DSN 785-3636, x4703), email = Michael.Temple@afit.af.mil

TERZUOLI, ANDREW J., Jr., Associate Professor of Electrical Engineering, Dept of Electrical and Computer Engineering, (AFIT/ENG); BS, Electrical Engineering, Polytechnic Institute of Brooklyn, 1969; MS, Electrical Engineering, Massachusetts Institute of Technology, 1970; PhD, Electrical Engineering, The Ohio State University, 1982. His research interests include computer model based studies; application of parallel computation, VLSI technology, and RISC architecture to numerical and transform methods; remote sensing, antennas and electromagnetics, machine vision and image processing; automated object recognition; wave scattering, radar cross section and low observables (stealth) technology. Dr. Terzuoli has published numerous articles. His research is funded by various agencies including Wright, Rome, Phillips and Armstrong Laboratories. Prior to joining AFIT in 1982, Dr. Terzuoli was a research associate at the ElectroScience laboratory at the Ohio State University, and was a member of the technical staff at the Bell Telephone Laboratories in New Jersey. Tel. 937-255-3636, x4717 (DSN 785-3636, x4717), email = Andrew.Terzuoli@afit.af.mil

THAL, ALFRED E. Jr., Lt Col, Instructor of Engineering and Environmental Management, Department of Systems and Engineering Management (AFIT/ENV); BS, Civil Engineering, Texas Tech University, 1981; MS, Engineering Management, Air Force Institute of Technology, 1985; Doctoral Candidate, Environmental Engineering, University of Oklahoma, 1999. Research interests include surfactant enhanced subsurface remediation, the use of tracers in site characterization efforts, the use of compositional simulators to model tracer studies and remediation efforts, and environmental management issues. Telephone: (937) 255-3636, x4588 (DSN 785-3636, x4588), e-mail: Alfred.Thal@afit.af.mil

TORVIK, PETER J., Professor Emeritus of Aerospace Engineering and Engineering Mechanics, Dept of Aeronautics and Astronautics, (AFIT/ENY); BS, University of Minnesota, 1960; MS, University of Minnesota, 1962; PhD, University of Minnesota, 1965; BA, Wright State University, 1980. Professor Torvik is a specialist in theory of elasticity, wave propagation, shock and vibration, impact damage in aircraft systems, laser-material interactions, aircraft survivability/ vulnerability. His primary research interests include structural dynamics, specifically, damping, impact, and penetration mechanics. Dr. Torvik is the author of some 60 technical papers and reports and 20 other publications. He served as Head of the Department of Aeronautics and Astronautics, 1980-1990. He is the recipient of the AF Meritorious Civilian Service Award and the AF Exceptional Civilian Service Award. Dr. Torvik is a Fellow of AIAA and also a Fellow of the ASME. Tel. 937-255-3636, x4740 (DSN 785-3636, x4740), email = Peter.Torvik@afit.af.mil

TRAGESSER, STEVEN G., Assistant Professor of Aerospace Engineering, Dept. of Aeronautics and Astronautics, (AFIT/ENY); BSAE, University of Illinois, 1992; MSAE, Purdue University, 1994; PhD, Purdue University, 1997; Prior to joining the AFIT faculty, Dr. Tragesser worked in the Space Guidance and Navigation Section at Draper Laboratory. His research interests include guidance of hypersonic vehicles, trajectory design and optimization, dynamics of tethered spacecraft, and analysis of other complex dynamical systems. Dr. Tragesser has published several refereed journal and conference papers and is a member of AIAA. Tel. 937-255-6565 (DSN 785-6565) ext. 4286, email=Steven.Tragesser@afit.af.mil.

TURCOTTE, JEFFREY S., Lt Col, Assistant Professor of Aeronautical Engineering, Dept of Aeronautics and Astronautics (AFIT/ENY); BS, University of California at Berkeley, 1982; MS, AFIT, 1988; PhD, University of California at Berkeley, 1996. Lt Col Turcotte specializes in structural dynamics but is also interested in structural theories and elasticity. Tel. 937-255-3636, x4597 (DSN 785-3636, x4597), email=Jeffrey.Turcotte@afit.af.mil

WALTERS, MICHAEL K., Lt Col, Assistant Professor of Atmospheric Physics, Dept of Engineering Physics (AFIT/ENP); BS, Zoology, Texas A&M University, 1976, MS, Meteorology, Texas A&M University, 1985, PhD Meteorology, Texas A&M University, 1988. Lt Col Walters has chaired 17 MS theses in four years at AFIT in the areas of battlefield-scale cloud forecasting, contrail forecasting, forecast support for electro-optical precision guided munitions, thunderstorm and downburst wind forecasting for space-launch support, ensemble-based probability of precipitation forecasting, transport and diffusion modeling, and mesoscale numerical weather prediction. He is a member of the American Meteorological Society and the American Geophysical Union. Tel. 937-255-3636, x4681 (DSN 785-3636, x4681), email = Michael.Walters@afit.af.mil

WEEKS, DAVID E., Associate Professor of Physics, Dept of Engineering Physics (AFIT/ENP); BA Physics with honors, Colgate University, 1983; MS, Physics, Georgia Institute of Technology, 1985; PhD Physics, University of Arkansas, 1989. Dr. Weeks' research interests include the development of time dependant wave packet methods to model the quantum mechanics of simple chemical reactions and to compute associated state to state reactive scattering matrix elements. A second area of interest centers on the application of k.p theory together with the envelope function approximation to model the electronic and optical properties of quantum well heterostructures. Tel. 937-255-3636, x4561 (DSN 785-3636, x4561), email = David.Weeks@afit.af.mil

WHITE III, EDWARD D., Capt, Assistant Professor of Statistics, Dept of Mathematics and Statistics, (AFIT/ENC); BS, University of Tampa, 1990; MAS, Ohio State University, 1991; PhD, Texas A&M University, 1998. Capt White's research interests include design of experiments, categorical data analysis, biostatistics, and model building. Tel. 937-255-3636, x4524 (DSN 785-3636, x4524), email = Edward.White@afit.af.mil

WIESEL, WILLIAM E., JR., Professor of Astronautical Engineering, Dept of Aeronautics and Astronautics, (AFIT/ENY); BS, University of Massachusetts, 1970; MS, Harvard University, 1972; PhD, Harvard University, 1974. Dr. Wiesel's research interests include orbital mechanics and astrodynamics, chaotic systems, estimation and control, planetary astronomy, stability theory, and optimal control. Dr. Wiesel is the author of Spaceflight Dynamics, the leading introductory text on astronautical engineering. He has, also, authored over 25 technical papers and has been a member of the department or 18 years. Tel. 937-255-6565, x4312 (DSN 785-6565, x4312), email = William.Wiesel@afit.af.mil

WOLF PAUL J., Lt Col, Deputy Head and Associate Professor of Physics, Dept of Engineering Physics, (AFIT/ENP); BS, Regis College, 1978; MS, Air Force Institute of Technology, 1979; PhD, Air Force Institute of Technology, 1985. Lt Col Wolf's research interests are concentrated in experimental atomic/molecular spectroscopy, reactive and non-reactive collision kinetics, thin film deposition processes by laser with applications toward laser devices, ionospheric and atmospheric chemistry, environmental monitoring, and thin film devices. The Air Force Office of Scientific Research currently funds him for research in chemical laser physics. He has advised two PhD and five MS students during his four years on the AFIT faculty and published over 20 papers. Tel. 937-255-3636, x4560 (DSN 785-3636, x4560), email = Paul.Wolf@afit.af.mil

WOOD, AIHUA W., Associate Professor of Mathematics, Dept of Mathematics and Statistics (AFIT/ENC); BS, Beijing University, 1984; MS, University of Connecticut, 1988; PhD, University of Connecticut, 1990. Dr. Wood's interests include partial differential equations, multigrid methods, integral equation methods for electromagnetic scattering from cavities, finite element methods, and photonic crystals. Dr. Wood is currently funded by the Air Force Office of Scientific Research to investigate scattering and propagation of electromagnetic waves. Tel. 937-255-3636, x4521 (DSN 785-3636, x4521), email = Aihua.Wood@afit.af.mil

YEO, YUNG K., Professor of Physics, Dept of Engineering Physics, (AFIT/ENP); BS, Seoul National University, 1961; PhD, University of Southern California, 1972. Professor Yeo's research interests include solid state physics, especially characterization of the electrical and optical properties of elemental, compound, ternary, and quaternary semiconductors using techniques such as Hall effect measurement, deep level transient spectroscopy, and photoluminescence. Professor Yeo has published about 70 articles in archival journals, several technical reports, presented over 140 papers at professional conferences, and holds one patent. He is a reviewer for the Applied Physics Letters and the Journal of Applied Physics. He is currently funded by the AFOSR, DARPA, and DTRA to study wide band gap semiconductors such as SiC and GaN, and SiGeC. This work involves collaborative effort with the Air Force Wright Laboratory. He has directed the research of ten PhD students and sixteen MS students. He is currently advising one PhD student who is doing active research, and has two postdoc fellows. He received the Ezra Kotcher Award for 1990, received the Gage H. Crocker Outstanding Professor Award for 1992, and received General Bernard A. Schriever Award for 1997. Tel. 937-255-3636, x4532 (DSN 785-3636, x4532), email = Yung.Yeo@afit.af.mil

3.4 FACULTY FELLOWS

BRIDGMAN, CHARLES J., Professor Emeritus of Nuclear Engineering, Dept of Engineering Physics, (AFIT/ENP); Fellow of the American Nuclear Society.

BROWN, WILLIAM M., Professor of Electrical Engineering, Dept of Electrical and Computer Engineering, (AFIT/ENG); Fellow of the Institute of Electrical and Electronic Engineers.

CHAN, YUPO, Professor of Operations Research; Dept of Operational Sciences, (AFIT/ENS); Fellow of the American Society of Civil Engineers

D'AZZO, JOHN J., Professor Emeritus of Electrical Engineering, Dept of Electrical and Computer Engineering, (AFIT/ENG); Fellow of the Institute of Electrical and Electronic Engineers.

FRANKE, MILTON E., Professor of Aerospace Engineering, Dept of Aeronautics and Astronautics (AFIT/ENY); Fellow of the American Society of Mechanical Engineers.

HOUPIS, CONSTANTINE H., Professor Emeritus of Electrical Engineering, Dept of Electrical and Computer Engineering, (AFIT/ENG); Fellow of the Institute of Electrical and Electronic Engineers.

MALL, SHANKAR, Air Force Research Laboratory, Professor, Dept of Aeronautics and Astronautics, (AFIT/ENY); Fellow of the American Society of Mechanical Engineers.

MAYBECK, PETER S., Professor of Electrical Engineering, Dept of Electrical and Computer Engineering, (AFIT/ENG); Fellow of the Institute of Electrical and Electronic Engineers.

PACHTER, MEIR, Professor of Electrical Engineering, Department of Electrical and Computer Engineering, (AFIT/ENG); Fellow of the Institute of Electrical and Electronic Engineers.

PALAZOTTO, ANTHONY N., Professor of Aerospace Engineering, Dept of Aeronautics and Astronautics, (AFIT/ENY); Fellow of the American Society of Civil Engineers.

ROGERS, STEVEN K., Professor of Electrical Engineering, Dept of Electrical and Computer Engineering, (AFIT/ENG); Fellow of the International Society for Optical Engineering.

TORVIK, PETER J., Professor Emeritus of Aerospace Engineering and Engineering Mechanics, Dept of Aeronautics and Astronautics, (AFIT/ENY); Fellow of the American Institute of Aeronautics and Astronautics, Fellow of American Society of Mechanical Engineers.

3.5 PROFESSIONAL CERTIFICATION

BROTHERS, HEIDI S., P.E., Professional Engineer, State of Oregon and California, C44500

BROWN, WILLIAM M., P.E., Professional Engineer, State of Michigan, H-483156

CHAN, YUPO, P.E., Professional Engineer, Commonwealth of Pennsylvania, PE-024730-E

CHRISSIS, JAMES W., P.E., Professional Engineer, State of Florida, 0037247

D'AZZO, JOHN J., P.E., Professional Engineer, State of Ohio, E-12550

GOLTZ, MARK N., DEE, Diplomate Environmental Engineer, American Academy of Environmental Engineers, Hazardous Waste Management specialty certification

GOLTZ, MARK N., P.E., Professional Engineer, State of Minnesota, 13978

GUNSCH, GREGG H., P.E., Professional Engineer, State of Ohio, 56828

HOUPIS, CONSTANTINE H., P.E., Professional Engineer, State of Ohio, E-19084

JODOIN, VINCENT J., P.E., Professional Engineer, State of Ohio, E-57166

NIXON, WM. BRENT, P.E., Professional Engineer, State of Ohio, E-049812

NIXON, WM. BRENT, QEP, Qualified Environmental Professional, Institute of Professional Environmental Practice, 03970041, multimedia specialty certification in waste management

PALAZOTTO, A., P.E., Professional Engineer, State of Ohio, E-39937

PERRAM, GLEN, P.E., Professional Engineer, State of Ohio, E-060534

QUINN, DENNIS W., P.E., Professional Engineer, State of Ohio, E-056873

SPENNY, CURTIS H., P.E., Professional Engineer, State of Ohio, E-038759

3.6 DOCTORAL DISSERTATIONS

Maj Scott D. Berger, "Dual Channel Matched Filtering and Space-Time Adaptive Processing," (AFIT/DS/ENG/99J-04), Faculty Advisor: Welsh, Sponsor: AFRL/SNRT

Maj J. Mark DelGrande, "Positive Anistropic Group Scattering Cross Sections For Radiation Transport," (AFIT/DS/ENP/99-03), Faculty Advisor: Mathews, Sponsor: DTRA/NSN

Maj Donald E. Duckro, "Multiple Comparison Pruning of Neural Networks," (AFIT/DS/ENC/99S-02), Faculty Advisor: Quinn, Sponsor: DAGSI

Capt Brian L. Evans, "Fan-Beam Multiplexed Compton Scatter Tomography For Single-Sided Noninvasive Inspection," (AFIT/DS/ENP/99-01), Faculty Advisor: Martin, Sponsor: AFRL/MLL

Capt Kelly A. Greene, "Feature Saliency In Artificial Neural Networks With Application To Modeling Workload," (AFIT/DS/ENS/98-02), Faculty Advisor: Bauer, Sponsor: AFOSR/NL

Maj Thomas H. Irish, "Efficient Simulation via Validation and Application of an External Analytical Model," (AFIT/DS/ENS/99-01), Faculty Advisor: Bauer, Sponsor: Air Mobility Command Studies and Analysis (AMC/XPY)

Capt John G. Keller, "SCAN-IT: A Computer Vision Model Motivated by Human Physiology and Behavior," (AFIT/DS/ENG/99J-03), Faculty Advisor: Rogers, Sponsor: AFRL/IFEC

Claudia V. Kropas-Hughes, "Image Fusion Using Autoassociative-Heteroassociative Neural Networks," (AFIT/DS/ENG/99J-06), Faculty Advisor: Rogers, Sponsor: AFRL/MLMR

Capt James P. Lake, "Flow Separation on a Turbine Blade in Cascade at Low Reynolds Number," (AFIT/DS/ENY/99-01), Faculty Advisor: King, Sponsor: AFRL/PRTT

Maj Robert E. Marmelstein, "Evolving Compact Decision Rule Sets," (AFIT/DS/ENG/99J-05), Faculty Advisor: Lamont, Sponsor: AFRL/IFTA

Capt Rodney L. Miller, "Development of a Discrete Ordinates Code System For Unstructured Meshes of Tetrahedral Cells, with Serial and Parallel Implementations," (AFIT/DS/ENP/98-02), Advisor: Mathews, Sponsor: SA-ALC/NWIC

Capt Robert S. Pope, "Collisional Effects in the Absorption Spectra of the Oxygen A Band and Nitric Oxide Fundamental Band," (AFIT/DS/ENP/98-03); Faculty Advisor: Wolf; Sponsor: AFRL/VSBM

David M. Reineke, "Estimation and Goodness-of-Fit in the Case of Randomly Censored Lifetime Data," (AFIT/DS/ENC/99-01), Faculty Advisor: Crown, Sponsor: HQ AFOTEC/TSE

Capt Thomas M. Schorsch, "Formal Representation and Application of Software Design Information," (AFIT/DS/ENG/99S-08), Faculty Advisor: Hartrum, Sponsor: AFRL/IFTD

Capt David A. Van Veldhuizen, "Multiobjective Evolutionary Algorithms: Classifications, Analyses, and New Innovations," (AFIT/DS/ENG/99J-01), Faculty Advisor: Lamont, Sponsor: AFRL/SNAT

Maj Frank C. D. Young, "Timed Safety Automata and Logic Conformance," (AFIT/DS/ENG/99J-02), Faculty Advisor: Hartrum, Sponsor: AFRL/IFTA

3.7 MASTERS' THESES BY PROGRAM

AERONAUTICAL ENGINEERING

Capt M.J. Chapa, "A Nonlinear Pre-Filter To Prevent Departure And/Or Pilot-Induced Oscillations Due To Actuator Rate Limiting," (AFIT/GAE/ENY/99M-01), Faculty Advisor: Liebst, Sponsor: AFRL/VAAD

Capt D.S. Conley, "Fatigue Response of Repaired Thick Aluminum Panels With Bondline Flaws," (AFIT/GAE/ENY/99M-03), Faculty Advisor: Mall, Sponsor: AFRL/VASE

2d Lt J.M. Corneille, "Wind Tunnel Investigation Of Joined Wing Configuration," (AFIT/GAE/ENY/99J-02), Faculty Advisor: Franke, Sponsor: AFRL/MNAV

1st Lt C.J. Davis, "Solving An Inverse Control Problem Using Predictive Methods," (AFIT/GAE/ENY/99M-05), Faculty Advisor: Heise, Sponsor: AFRL/VAAD

Capt F.L. Dement, "Effects Of Pressure Gradients on Turbulent Boundary Layer Flow Over a Flat Plate With Riblets," (AFIT/GAE/ENY/99M-09), Faculty Advisor: King, Sponsor: AFRL/PRTT

Capt R.G. Glassco, "Closely Supervised Reactive Control Of An Uninhabited Aerial Vehicle," (AFIT/GAE/ENY/99J-01), Faculty Advisor: Spenny, Sponsor: AFRL/HEC

1st Lt A.G. Harris, "Robust Eigenstructure Assignment Using Positive Definite Output Feedback Control," (AFIT/GAE/ENY/99M-06), Faculty Advisor: Liebst, Sponsor: AFRL/VSOC

2d Lt O.A. Powell, "Heat Transfer To The Inclined Trailing Wall Of An Open Cavity," (AFIT/GAE/ENY/99M-07), Faculty Advisor: Bons, Sponsor: AFRL/PRSS

Capt S.M. Spottswood, "Progressive Failure Analysis Of Composite Panels," (AFIT/GAE/ENY/99M-08), Faculty Advisor: Palazotto, Sponsor: AFOSR/NA

Capt B.W. St Germain, "Tip Vortex And Crenulation Effects In A Compressor Cascade With Moving Endwall," (AFIT/GAE/ENY/99M-02), Faculty Advisor: King, Sponsor: AFRL/PRTF

APPLIED PHYSICS

Capt Brad L. Beatty, "Analysis of a Simple Model of the Accumulation and Depletion of Fuel Radionuclides in Selected Nuclear Reactors", AFIT/GAP/ENP/96D-2, (Completed 8 Mar 1999) Advisor: Mathews, Sponsor: AFTAC/TMAR

Capt Barry Behnken, "Kinetic Model of a Space-Based BR Laser Pumped by Solar Photolysis of 1BR", (AFIT/GAP/ENP/99M-01), Faculty Advisor: Perram, Sponsor: AFRL/DEL

Capt Jay Foil, "Use of Diffuse Reflectance Spectroscopy to Determine Desorption Coefficients of Trichloroethylene from Powdered Soils,"(AFIT/GAP/ENP/99M-02), Faculty Advisor: Wolf

Capt David Gerts, "Characterization of the Double Scatter Spectrum in Multiplexed Compton Scatter Tomography," (AFIT/GAP/ENP/99M-03), Faculty Advisor: Martin, Sponsor: AFRL/MLLP

Capt Craig F. Lamarche, "Performance Evaluation of the Nuclear Weapon (NWPN) Source Model for the Hazard Prediction and Assessment Capability (HPAC) Code," (AFIT/GAP/ENP/99S-01), Faculty Advisor: Jodoin, Sponsor: DTRA/CP

Capt Kelly Law, "Validation of the Gallagher Protonospheric Model," (AFIT/GAP/ENP/99M-04), Faculty Advisor: Goldizen, Sponsor: AFRL/VS

2d Lt Christian Morath, "Electrical Characterization of Ion Implanted 4H-Silicon Carbide," (AFIT/GAP/ENP/99M-05), Faculty Advisor: Yeo, Sponsor: AFRL/MLPO

Capt Michael J. Murphy, "Modeling Four-Component Uranium Gaseous Diffusion Enrichment Cascades," (AFIT/GAP/ENP/99J-01), Advisor: Mathews

2d Lt T.A. Niday, "Inelastic Scattering Matrix Elements for the Collision $B(^2P_{1/2}) + H_2(j)$ $B(^2P_{3/2}) + H_2(j)$," (AFIT/GAP/ENP/99M-06), Faculty Advisor: Weeks, Sponsor: AFOSR/NL.

Capt S.J. Novotny, "Band Structure Anisotropy in Semiconductor Quantum Wells," (AFIT/GAP/ENP/99M-07), Faculty Advisor: Weeks, Sponsor: AFRL/DELS.

1st Lt Dennis Rand, "Characterization of Weathering in Uranium Oxide Particles by Raman Photoluminescence and Infrared Spectroscopy," (AFIT/GAP/ENP/99M-08), Faculty Advisor: Martin, Sponsor: AFTAC/TMA

1st Lt Blake Rodgers, "Laser Beam Combining and Cleanup Via Stimulated Brillouin Scattering in Multimode Optical Fibers," (AFIT/GAP/ENP/99M-09), Faculty Advisor: Roh, Sponsor: AFRL/DELS

Capt Marc Sands, "An Investigation into the Noninvasive Assessment of Bone Density Using Multiplexed Compton Scattered Tomography," (AFIT/GAP/ENP/99M-10), Faculty Advisor: Martin, 74th Med Group Wright Patterson Medical Center

Capt Scott H. Sinkular, "Dose Rate Estimates for Reprocessing Spent Nuclear Fuel," (AFIT/GAP/ENP/99M-11), Advisor: Mathews

Capt Brian Smith, "A Continuous Wave Atomic Bromine Laser Produced by Photolysis of Iodine Monobromide," (AFIT/GAP/ENP/99J-12), Faculty Advisor: Perram, Sponsor: AFRL/DEL

Capt Christopher Smithtro, "Numerical Solutions to the Two-Dimensional Boltzmann Equation," (AFIT/GAP/ENP/99J-13), Faculty Advisor: Bailey, Sponsor: AFRL/PR

Capt Frank Tersigni, "Space Charge Structure of a Glow Discharge in the Presence of Longitudinal Inhomogeneity," (AFIT/GAP/ENP/99J-14), Faculty Advisor: Bailey, Sponsor: AFRL/PR

Capt Shannon Walker, "Double Layer Effects on Shock Wave Propagation," (AFIT/GAP/ENP/99J-15), Faculty Advisor: Bailey, Sponsor: AFRL/PR

2d Lt Janine Wiggins, "Optimization of a Multilayer Photothermal Sensor for Infrared Spectroscopy," (AFIT/GAP/ENP/99J-16), Faculty Advisor: Burggraf, Sponsor: HQ CBDCOM/SCBRD

Capt Mark Wittig, "Implementation of a Two-Dimensional Hydrodynamics Shock Code Based Upon the Weighted Average Flux Method," (AFIT/GAP/ENP/99J-01), Faculty Advisor: Mathews, Sponsor: DTRA

ASTRONAUTICAL ENGINEERING

Capt G.A. Leisman & 1st Lt A.D. Wallen, "Design And Analysis Of On-Orbit Servicing Architectures For The Global Positioning System Constellation," (AFIT/GA/GOR/99M-01), Faculty Advisor: Kramer, Sponsor: SMC/CZS

Capt S.P. Williams, "Space Maneuver Vehicle Orbital Mission Planner: Development Of Application And Analysis Of On-Demand Maneuvering Ability," (AFIT/GA/ENY/99M-02), Faculty Advisor: Wiesel, Sponsor: AFRL/VSDV

COMPUTER ENGINEERING

1st Lt T. Altunbasak, "A Trade-Off Analysis For Quality Of Service In Real-Time Voice Over IP," (AFIT/GCE/ENG/99M-01), Faculty Advisor: Gunsch, Sponsor: AFIT/ENG

Capt R.H. Broyles, "Performance Analysis of TCP Enhancements in Satellite Data Networks," (AFIT/GCE/ENG/99M-02), Faculty Advisor: Raines, Sponsor: NASA

Capt K.J. Cardinale, "A Constructive Induction Approach to Computer Immunology," (AFIT/GCE/ENG/99M-03), Faculty Advisor: Gunsch, Sponsor: AFOSR/MSS

2d Lt K.A. Ercakar, "A Performance Analysis of a Low Earth Orbit Satellite System," (AFIT/GCE/ENG/99J-01), Faculty Advisor: Raines, Sponsor: AFIT/ENG

Capt S.R. Pratt, "A Performance Analysis of Dynamics Routing Algorithms in an Iridium-Like Low Earth Orbit Satellite System," (AFIT/GCE/ENG/99M-04), Faculty Advisor: Raines, Sponsor: AFRL/IFG

1st Lt A.G. Valente, "Analysis of N-Tier Architecture Applied to Distributed Database Systems," (AFIT/GCE/ENG/99J-04), Faculty Advisor: Lamont, Sponsor: Brazilian Air Force

COMPUTER SCIENCE

Capt G.L. Anderson, "An Interactive Tool for Refining Software Specifications from a Formal Domain Model," (AFIT/GCS/ENG/99M-01), Faculty Advisor: Hartrum, Sponsor: AFRL/IFTD

1st Lt E. Colonese, "Methodology for Integrating the Scenario Database of Simulation Systems," (AFIT/GCS/ENG/99J-03), Faculty Advisor: Hartrum, Sponsor: AFRL/SNZW

Maj K.E. Crowe, "A Comparative Analysis of the Iridium and Globalstar Satellite System Transmission Paths," (AFIT/GSO/ENG/99M-01), Faculty Advisor: Raines, Sponsor: Dept of Defense, Australia

Capt K.R. Deerman, "Protein Structure Prediction Using Parallel Linkage Investigating Genetic Algorithms," (AFIT/GCS/ENG/99M-03), Faculty Advisor: Lamont, Sponsor: AFRL/MLPJ

Capt R.A. Favorito & 1st Lt D.M. McIllece, "Analysis of USAF Battlelab's Communication Infrastructure Over Various Protocols," (AFIT/GCS/ENG/99M-04), Faculty Advisor: Raines, Sponsor: HQ USAF/XORPB

1st Lt R.A. Flood, "A Java Based Human Computer Interface For A UAV Decision Support Tool Using Conformal Mapping," (AFIT/GCS/ENS/99M-01), Faculty Advisor: Bailey, Sponsor: UAV Battlelab

Capt C.J. Fogle, "Strategies for Steganalysis of Bitmap Graphics Files," (AFIT/GCS/ENG/99M-05), Faculty Advisor: Potoczny, Sponsor: NAIC/TAC

1st Lt L.P. Hammack, "Parallel Data Mining With The Message Passing Interface Standard on Clusters Of Personal Computers," (AFIT/GCS/ENG/99M-06), Faculty Advisor: Lamont, Sponsor: AFRL/IFTA

2d Lt G.M. Harrison, "A Real-Time Airdrop Visualization in a Virtual Environment," (AFIT/GCS/ENG/99M-07), Faculty Advisor: Jacobs, Sponsor: ASC/YC

Capt R.H. Hartz, "Methodology for Application Design Using Information Dissemination and Active Database Technologies," (AFIT/GCS/ENG/99M-08), Faculty Advisor: Potoczny, Sponsor: AFRL/SNAA

2d Lt J.M. Hemmes, "Modeling Chemical Absorption Through Membranes," (AFIT/GCS/ENC/99M-01), Faculty Advisor: Quinn, Sponsor: AFRL/HEST

Maj J.K. Joo, "The Simulation Modeling and Analysis of Wireless Local Area Networks Supporting the IEEE 802.11 Standard," (AFIT/GCS/ENG/98D-01), Faculty Advisor: Raines, Sponsor: AFRL/IFSD

1st Lt J.A. Kissack, "Transforming Aggregate Object-Objected Formal Specifications To Code," (AFIT/GCS/ENG/99M-09), Faculty Advisor: Hartrum, Sponsor: AFRL/IFTD

Capt A.W. Learn, "Target Pose Estimation from Radar Data Using Adaptive Networks," (AFIT/GCS/ENG/99M-10), Faculty Advisor: Gustafson, Sponsor: AFRL/SNAT

Capt T. Lee, "A Web-based Prototype System for AFIT Edplan Administration," (AFIT/GCS/ENG/98D-02), Faculty Advisor: Talbert, Sponsor: AFIT/RRD

Capt D.R. Lomsdalen, "A Modeling and Simulation Approach To Analyze The Workload Analysis Of Network Router Access List Growth," (AFIT/GCS/ENG/99M-11), Faculty Advisor: Gunsch, Sponsor: DISA/JEEBC

Capt C.G. Marks, "Extensible Multi-Agent System For Heterogeneous Database Mining And Verification Association Rule Mining and Unification," (AFIT/GCS/ENG/99M-12), Faculty Advisor: DeLoach, Sponsor: AFIT/ENG

Capt D.L. Moraes, "Transforming COBOL Legacy Software To A Generic Imperative Model," (AFIT/GCS/ENG/99M-22), Faculty Advisor: Graham, Sponsor: AFRL/IFTD

1st Lt P.A. Noe, "A Structured Approach to Software Tool Integration," (AFIT/GCS/ENG/99M-14), Faculty Advisor: Hartrum, Sponsor: AFRL/IFTD

2d Lt H. M. O'Donnell, "A Constructive Induction Approach to Computer Immunology," (AFIT/GCS/ENG/99M-02), Faculty Advisor: Gunsch, Sponsor: AFOSR/DMSS

Capt T.I. Page, "Incorporating Scene Mosaics As Visual Indexes Into UAV Video Imagery DataBases," (AFIT/GCS/ENG/99M-16), Faculty Advisor: Talbert, Sponsor: AFRL/IFEC

1st Lt B.L. Pyburn, "Analysis of the Applicability of Video Segmentation to Unmanned Aerial Vehicle Surveillance Video," (AFIT/GCS/ENG/99M-17), Faculty Advisor: Talbert, Sponsor: AFRL/IFEC

Capt S. Rodrigues, "COBOL Reengineering Using the Parameter-Based Object Identification (PBOI) Methodology," (AFIT/GCS/ENG/99J-02), Faculty Advisor: Graham, Sponsor: AFRL/IFTD

Capt L.F. Silva, "Parallel Digital Asignal Processing On a Network of Personal Computers Case Study: Spacetime Adaptive Processing," (AFIT/GCS/ENG/99J-01), Faculty Advisor: Lamont, Sponsor: AFIT/ENG

Capt P.G. Stratton, "A Metrics-Based Analysis Of Interface Usability Improvements By Applying Intelligent Agents," (AFIT/GCS/ENG/99M-18), Faculty Advisor: DeLoach, Sponsor: AFRL/SNZW

2d Lt T.W. Tankersley, "Generating Executable Code from Formal Specifications of Primitive Objects," (AFIT/GCS/ENG/99M-19), Faculty Advisor: Graham, Sponsor: AFRL/IFTD

Capt R.J. Weber, "Extracting A Common Object Model for DoD Simulation Systems," (AFIT/GCS/ENG/99M-20), Faculty Advisor: Potoczny, Sponsor: AFRL/SNZW

ELECTRICAL ENGINEERING

Capt D.J. Barnhart, "An Improved Asynchronous Implementation Of A Fast Fourier Transform Architecture For Space Applications," (AFIT/GE/ENG/99M-01), Faculty Advisor: Brothers, Sponsor: AFRL/VSSE

Capt C.A. Bohn, "Asymmetric Load Balancing On A Heterogeneous Cluster Of PCs," (AFIT/GE/ENG/99M-02), Faculty Advisor: Lamont, Sponsor: ASC/HP

Capt S.H. Chastain, "Integrated GPS/INS Precision Approach Landing With M3AE Interference Avoidance," (AFIT/GE/ENG/99M-03), Faculty Advisor: Miller, Sponsor: AFIT/ENG

Capt J.G. Cochran, "TE Scattering From Bubbles In RAM," (AFIT/GE/ENG/99M-04), Faculty Advisor: Collins, Sponsor: ASC/ENAD

Mr. C.R. Colon, "An Efficient GPS Position Determination Algorithm," (AFIT/GE/ENG/99M-33), Faculty Advisor: Pachter, Sponsor: AFRL/VAAD

Capt M.D. Craig, "An Empirical Prediction Model Of Tolerance Effects On Frequency Selective Surfaces Using The Monte Carlo Method," (AFIT/GE/ENG/99M-05), Faculty Advisor: Collins, Sponsor: AFRL/XPN

1st Lt B.J. Crothers, "Radar Cross-Section Enhancement Of Simple Targets," (AFIT/GE/ENG/99M-06), Faculty Advisor: Pyati, Sponsor: AFRL/XPN

Capt R.L. Eigel, "Radar Cross-Section (RCS) Characterization of Complex Objects," (AFIT/GE/ENG/99J-01), Faculty Advisor: Terzuoli, Sponsor: ASC/ENAD

Capt A.J. Feltman, "Trade-off Analysis Of Communications Capabilities Of Intersatellite Links," (AFIT/GE/ENG/99M-08), Faculty Advisor: Raines, Sponsor: SMC/XRI

2d Lt K.A. Fisher, "Multiple Model Adaptive Estimation Using Filter Spawning," (AFIT/GE/ENG/99M-09), Faculty Advisor: Maybeck, Sponsor: AFRL/VACC

Capt A.P. Ford, "Computation Of Scattering From Bodies Of Revolution Using An Entire Domain Basis Implementation Of The Moment Method," (AFIT/GE/ENG/99M-10), Faculty Advisor: Collins, Sponsor: AFRL/XPN

Capt A.M. Gillman, "Non Co-Operative Detection Of LPI/LPD Signals Using Cyclic Spectral Analysis," (AFIT/GE/ENG/99M-11), Faculty Advisor: Temple, Sponsor: AFRL/SNZW

Capt S.R. Graham, "An Immersive User Interface For The Cave Automatic Virtual Environment,"(AFIT/GE/ENG/99M-12), Faculty Advisor: Jacobs, Sponsor: ASC/YCA

1st Lt B.M. Huether, "Optimal Wavelet Denoising for High Range Resolution Radar Classification," (AFIT/GE/ENG/99M-14), Faculty Advisor: Gustafson, Sponsor: AFRL/SNZT

Maj K.D. Johnston, "Analysis of Radio Frequency Interference Effects On a Modern Code GPS Receiver," (AFIT/GSO/ENG/99M-02), Faculty Advisor: Miller, Sponsor: CFB Winnipeg

2d Lt J.M. Kos, "Graphical User Interface And Microprocessor Control Enhancement Of A Pseudorandom Code Generator," (AFIT/GE/ENG/99M-15), Faculty Advisor: Temple, Sponsor: AFRL/SNRW

Capt A. MacDonald, "Classification Of High Range Resolution Radar Returns Using Hidden Markov and Gaussian Mixture Models," (AFIT/GE/ENG/99M-16), Faculty Advisor: Rogers, Sponsor: AFRL/SNZT

2d Lt R. Mediavilla, "Terrain Backscattering Coefficient Generator," (AFIT/GE/ENG/99M-18), Faculty Advisor: Pyati, Sponsor: AFRL/SNAS

Capt B.J. Mortenson, "The Effect Of Registration Errors On Tracking In A Networked Radar System," (AFIT/GE/ENG/99M-19), Faculty Advisor: Gustafson, Sponsor: NAIC/TAER

Capt R.C. Novack, "High Range Resolution (HRR) Profiling Using Phase-Coded, Stepped-Frequency Radar Waveforms," (AFIT/GE/ENG/99M-20), Faculty Advisor: Temple, Sponsor: AFRL/SNAS

Capt W.N. O'Connor, "Low Grazing Angle Terrain Backscattering Coefficient Generator," (AFIT/GE/ENG/99M-21), Faculty Advisor: Pyati, Sponsor: AFRL/SNAS

2d Lt D.J. Petrovich, "Structural Emergence and the Collaborative Behavior of Nano-Satellites," (AFIT/GE/ENG/99M-22), Faculty Advisor: Gustafson, Sponsor: AFRL/ATT

Capt T.S. Pittman, "A Climatology-Based Model For Long-Term Prediction Of Radar Beam Refraction," (AFIT/GE/ENG/99M-23), Faculty Advisor: Pyati, Sponsor: NAIC/TAER

Capt A.W. Proud, "Close Formation Flight Control," (AFIT/GE/ENG/99M-24), Faculty Advisor: Pachter, Sponsor: AFRL/VAAD

Capt P.C. Rounsavall, "Modulation Of Electrostatic Microelectromechanical Mirrors Using A CMOS Controller," (AFIT/GE/ENG/99M-25), Faculty Advisor: Brothers, Sponsor: AFRL/VSSE

Capt K.C. Schloer, "Antenna Gain Enhancement Using A Photonic Band Gap Reflector," (AFIT/GE/ENG/99M-26), Faculty Advisor: Collins, Sponsor: AFRL/SNRP

2d Lt J.P. Sillence, "Loop Gain Estimation For Adaptive Control," (AFIT/GE/ENG/99M-27), Faculty Advisor: Pachter , Sponsor: AFRL/VAAD

2d Lt P.J. Swackhammer, "Design And Simulation Of A Multiple Access Transform Domain Communication System," (AFIT/GE/ENG/99M-28), Faculty Advisor: Temple, Sponsor: AFRL/SNRW

Capt T.S. Utton, "Ultra-Wideband Tem Horns, Transient Arrays and Exponential Curves: A FDTD Look," (AFIT/GE/ENG/99M-29), Faculty Advisor: Terzuoli, Sponsor: AFRL/DEHP

2d Lt B.J. Vanek, "GPS Signal Offset Detection and Noise Strength Estimation In A Parallel Kalman Filter Algorithm," (AFIT/GE/ENG/99M-30), Faculty Advisor: Maybeck, Sponsor: AFRL/SNAR

Capt P.N. Villanueva, "Application Of The Finite Element Method To The Scattering Of A Two-Dimensional, Semi-Infinite Periodic Structure," (AFIT/GE/ENG/99M-31), Faculty Advisor: Collins, Sponsor: AFRL/XPN

Capt B.J. Young, "An Integrated Synthetic Aperture Radar/Global Positioning System/Inertial Navigation System For Target Geolocation Improvement," (AFIT/GE/ENG/99M-32), Faculty Advisor: M.M. Miller, Sponsor: ASC/RAP

ELECTRO OPTICS

Capt Bradley Rennich, "Active Multispectral Band Selection and Reflectance Measurement System," (AFIT/GEO/ENP/99M-01), Faculty Advisor: Roh, Sponsor: AFRL/SNJ

ENGINEERING AND ENVIRONMENTAL MANAGEMENT

Capt D.J. Anason, "Exploring the Management of Outsourcing and the Determination of Civil Engineering Minimum Manning Numbers in Order to Optimize Air Force Benefits," (AFIT/GEE/ENV/99M-01), Faculty Advisor: Shelley, Sponsor: HQ USAF/ILEIO

Capt S.L. Anason, "Cost-Benefit Analysis of Cosolvent Flushing to Treat NAPL's at Contaminated Sites," (AFIT/GEE/ENV/99M-02), Faculty Advisor: Goltz, Sponsor: AFRL/MLQE

Capt B.D. Benter, "Substrate Availability in Solid Waste Landfills," (AFIT/GEE/ENV/99M-03), Faculty Advisor: Nixon and Shelley, Sponsor: HQ AFCEE/ERC and HQ AFMC/CEVR

Capt B.W. Burke, "Biodegradation Of Aircraft Deicing Fluid Components In Soil," (AFIT/GEE/ENV/99M-04), Faculty Advisor: Bleckmann, Sponsor: AFRL/MLSE

Capt A.L. Gepner, Jr., "Textual Analysis of Environmental Compliance Assessment Program Findings," (AFIT/GEE/ENV/99M-05), Faculty Advisor: Lofgren

2d Lt C.A. Garrett, "Optimization of In Situ Aerobic Cometabolic Bioremediation Of Trichloroethylene-Contaminated Groundwater Using A Parallel Genetic Algorithm," (AFIT/GEE/ENG/99M-02), Faculty Advisor: Goltz, Sponsor: AFRL/MLQE

Capt J.M. Griffin, "Expeditious Method For Estimating Cleanup Costs At Department of Defense Installations in Korea," (AFIT/GEE/ENV/99M-06), Faculty Advisor: Goltz, Sponsor: INSS

Capt D.H. Hartman, "Expeditious Methods for Site Characterization and Risk Assessment at Department of Defense Hazardous Waste Sites in the Republic of Korea," (AFIT/GEE/ENV/99M-07), Faculty Advisor: Goltz, Sponsor: INSS

Capt E.L. Hill, "The Determinants of Locational Choice for Air Force Military Renters: Implication for Policy," (AFIT/GEE/ENV/99M-08), Faculty Advisor: Lofgren, Sponsor: HQ USAF/ILEH

Capt T.W. Johannes, "Optimal Pulsed Pumping Schedule Using Calculus of Variation Methodology," (AFIT/GEE/ENC/99M-01), Faculty Advisor: Oxley, Sponsor: HQ AFCEE/ERC

Capt M.J. Johnson, "Individual Housing Choices Among Air Force Members," (AFIT/GEE/ENV/99M-10), Faculty Advisor: Nixon, Sponsor: USAF/ILEH

Capt N.W. Kassel, "Development Of Site Characterization Simulator," (AFIT/GEE/ENG/99M-01), Faculty Advisor: Goltz, Sponsor: AFIT/CEV

1st Lt D.L. Kellner, "Sorption Of The Aircraft Deicing Fluid Component Methyl-Benzotriazole In Soil," (AFIT/GEE/ENV/99M-11), Faculty Advisor: Bleckmann, Sponsor: AFRL/MLQ

1st Lt J.R. Palmer, "Concept Design And Optimization Of A MSW Material Recovery System," (AFIT/GEE/ENV/99M-12), Faculty Advisor: Nixon, Sponsor: 52 CES/CEV

Capt C.P. Roberts, "Environmental Management Strategies In Public Sector Organizations," (AFIT/GEE/ENV/99M-13), Faculty Advisor: Lofgren, Sponsor: HQ ACC/CEV

Capt J.S. Romasz, "Analysis of Cost Growth In U.S. Air Force Base Support Function Contracts," (AFIT/GEE/ENV/99M-14), Faculty Advisor: Nixon, Sponsor: HQ USAF/IELIO

Capt S.C. Thompson, "Decision Analysis Methodology To Evaluate Organization Strategies For The Civil Engineer Operations Flight," (AFIT/GEE/ENV/99M-15), Faculty Advisor: Lofgren, Sponsor: 314 TRW/CES

1st Lt D.D. Veerkamp, "Natural Attenuation Of Chlorinated Ethenes By Anaerobic Reductive Dechlorination Coupled With Aerobic Cometabolism," (AFIT/GEE/ENV/99M-16), Faculty Advisor: Goltz, Sponsor: AFRL/MLQE

METEOROLOGY

Capt Mark Adair, "A Refinement and Cross-Validation of the Special Sensor Microwave Imager (SSM/I) Calibration-Validation (LV), (AFIT/GM/ENP/99M-01), Faculty Advisor: Goldizen, Sponsor: HQ AFWA/DNXM

Capt David Bacot, "Visualizing the Impact of Multivariate Meteorological Input Error on Electro-Optical Tactical Decision and Output," (AFIT/GM/ENP/99M-02), Faculty Advisor: Walters, Sponsor: AFRL/VSBE

Capt Christopher C. Cox, "A Comparison of Horizontal Cloud-to-Ground Lightning Flash Distance Using Weather Surveillance Radar and the Distance Between Successive Flashes Method," (AFIT/GM/ENP/99M-03); Faculty Advisor: Miner; Sponsor: 45th Weather Squadron (Cape Canaveral/Kennedy Space Center)

1st Lt John Crane, "Improving Cape Canaveral's Next-Day Thunderstorms Forecasting Using a Meso-ETA Model-Based Index," (AFIT/GM/ENP/99M-04), Faculty Advisor: Walters, Sponsor: 45 WS/SYR

1st Lt Michael W. Engel, "Evaluation of Barnes' Method and Kriging for Estimating the Low Level Wind Field," (AFIT/GM/ENP/99M-05); Faculty Advisor: Miner; Sponsor: 45th Weather Squadron (Cape Canaveral/Kennedy Space Center)

Capt James Everitt, "An Improved Thunderstorm Forecast Index for Cape Canaveral Florida," (AFIT/GM/ENP/99M-06), Faculty Advisor: Miner, Sponsor: 45WS/SYR

Capt Robert Hauser, "Survey of Military Applications for Fourier-Transform Infrared (FTIR) Spectroscopy," (AFIT/GM/ENP/99M-07), Faculty Advisor: Perram, Sponsor: 88th WX Squadron

Capt Darrell Kerr, "A Validation Study of Cloud Scene Simulation Model Temporal Performance," (AFIT/GM/ENP/99M-08), Faculty Advisor: Walters, Sponsor: 88th WX Squadron/WEA

1st Lt Robert Russ, "Estimating the Height of the Planetary Boundary Layer for Diffusion-Transport Atmospheric Models: A Four Algorithm," (AFIT/GM/ENP/99M-09), Faculty Advisor: Walters

Capt Travis A. Steen, "Forecasting Downdraft Wind Speeds Associated with Airmass Thunderstorms for Peterson Air Force Base, Colorado, Using the WSR-88D," (AFIT/GM/ENP/99M-10); Faculty Advisor: Miner; Sponsor: HQ AFSPC/DORW

Capt Steven J. Storch, "Predicting Launch Pad Winds at the Kennedy Space Center with a Neural Network Model," (AFIT/GM/ENP/99M-11); Faculty Advisor: Miner; Sponsor: 45th Weather Squadron (Cape Canaveral/Kennedy Space Center)

1st Lt Gerald Sullivan, "Using the WSR-88D to Forecast Downburst Winds at Cape Canaveral Air Station and the Kennedy Space Center," (AFIT/GM/ENP/99M-12), Faculty Advisor: Walters, Sponsor: 45th WS/SYR

OPERATIONAL ANALYSIS

1st Lt C. B. Bassham, "Visualizing Early-Stage Breast Cancer Tumors in a Mammographic Environment Through a 3-Dimensional Mathematical Model, " (AFIT/GOA/ENS/99M-01), Faculty Advisor: Bauer, Sponsor: AFRL

Capt K. S. Bellamy, "Analysis of a Non-Trivial Queuing Network," (AFIT/GOA/ENS/99M-02), Faculty Advisor: Murdock & Reid, Sponsor: NSA

Maj D. A. Brown, "The Quota Allocation Model: The Linear Optimization of a Markov Decision Process," (AFIT/GOA/ENS/99M-03), Faculty Advisor: Moore, Sponsor: AFIT

Capt L. E. Champagne, "Evaluation and Analysis of EFX 98 Assessment Experiences and EFX 98 Assessment Evaluation," (AFIT/GOA/ENS/99M-04), Faculty Advisor: Hill/Bauer, Sponsor: AF Experimentation Office

Capt D. W. Franzen, "A Bayesian Decision Model for Battle Damage Assessment," (AFIT/GOA/ENS/99M-05), Faculty Advisor: Hill, Sponsor: Command and Control Battlelab

Capt K. P. O'Rourke, "Dynamic Unmanned Aerial Vehicle (UAV) Routing with a Java-Encoded Reactive Tabu Search Metaheuristic," (AFIT/GOA/ENS/99M-06), Faculty Advisor: Bailey, Sponsor: UAV Battlelab

Maj D. M. Ryer, "Implementation of the Metaheuristic Tabu Search in Route Selection for Mobility Analysis Support System," (AFIT/GOA/ENS/99M-07), Faculty Advisor: Bailey, Sponsor: AMC/XPY

Maj T. S. Szvetecz, "C-17 Strategic Airdrop Simulation and Analysis," (AFIT/GOA/ENS/99M-08), Faculty Advisor: Bailey, Sponsor: ASC/YC

Maj T. R. Tighe, "Strategic Effects of Airpower and Complex Adaptive Agents: An Initial Investigation," (AFIT/GOA/ENS/99M-09), Faculty Advisor: Hill, Sponsor: AF/XOC, AFSAA

Maj D. W. Williams, "An Evaluation and Comparison of the ACE and BRACE Airfield Models," (AFIT/GOA/ENS/99M-10), Faculty Advisor: Bauer, Sponsor: HQ AMC/XPY

OPERATIONS RESEARCH

Capt T. W. Albrecht, "Modeling and Analysis of Aerial Port Operations, " (AFIT/GOR/ENS/99M-01), Faculty Advisor: Bauer, Sponsor: HQ AMC/XPY

Capt M. K. Betts, "Applying Value-Focused Thinking to Eliminating Enemy Satellite Capabilities," (AFIT/GOR/ENS/99M-02), Faculty Advisor: Murdock, Sponsor: Space Battlelab

1st Lt E. M. Burke, "Quality Function Deployment from an Operations Research Perspective," (AFIT/GOR/ENS/99M-03), Faculty Advisor: Kloeber, Sponsor: HQ ACC/XP-SAS

Capt M. E. Delory, "AMRAAM Fleet Life Cycle Simulation," (AFIT/GOR/ENS/99M-04), Faculty Advisor: Murdock/J.O. Miller, Sponsor: ASC/YAA

1st Lt M. Eravsar, "A Comparison of Genetic Algorithms' Parameterization on Synthetic Test Problems," (AFIT/GOR/ENS/99M-05), Faculty Advisor: Hill, Sponsor: AFIT/ENS

Capt M. P. Gaupp, "Pilot Inventory Complex Adaptive System (PICAS): An Artificial Life Approach to Managing Pilot Retention," (AFIT/GOR/ENS/99M-06), Faculty Advisor: Hill, Sponsor: AFPOA

1st Lt P. M. Kerchner, Jr, "A Value-Focused Approach to Psychological Operations," (AFIT/GOR/ENS/99M-07), Faculty Advisor: Deckro, Sponsor: JCCWC

2d Lt D. A. Koewler, "An Approach for Tasking Allocated Combat Resources to Targets," (AFIT/GOR/ENS/99M-08), Faculty Advisor: Deckro, Sponsor: AFIT, AFOSR

Capt T. I. Laine, "Selection of Psychophysiological Features Across Subjects for Classifying Workload Using Artificial Neural Networks (ANNs)," (AFIT/GOR/ENS/99M-09), Faculty Advisor: Bauer, Sponsor: AFOSR/NL, AFRL/HECP

Capt E. L. McLarney, "Using Simulation to Model the Army Recruiting Station with Multi-Quality Prospects," (AFIT/GOR/ENS/99M-10), Faculty Advisor: Miller, Sponsor: US Army Recruiting Command

1st Lt T. Memis, "A New Sequential Goodness-of-Fit Test for the Three-Parameter Weibull Distribution with Known Shape Parameter Value Based on the Skewness and the Q-Statistic G.O.F. Test Statistics," (AFIT/GOR/ENC/99M-01), Faculty Advisor: Crown, Sponsor: HQ AFOTEC/TSE

2d Lt D. T. Mills, "Two-Stage Stochastic Linear Programming with Recourse: A Characterization of Local Regions using Response Surface Methodology," (AFIT/GOR/ENS/99M-11), Faculty Advisor: Bailey, Sponsor: AFIT/ENS

1st Lt S. L. Naylor, "Portfolio Selection of Innovative Technologies Via Life Cycle Cost Modeling," (AFIT/GOR/ENS/99M-12), Faculty Advisor: Deckro/Moore, Sponsor: AFIT/ENS

Capt F. N. Nelson, "A Validation Assessment of THUNDER 6.5's Intelligence, Surveillance, and Reconnaissance Module," (AFIT/GOR/ENS/99M-13), Faculty Advisor: McIntyre, Sponsor: Space Warfare Center

Capt F. C. O'Fearna, "Reduction Of the Aircraft Ground Equipment Footprint of an Air Expeditionary Force," (AFIT/GOR/ENS/99M-14), Faculty Advisor: Hill, Sponsor: AEF Battlelab

Maj C. H. Park, "A New Sequential Goodness-of-Fit Test for a Family of Two-Parameter Gamma Distributions with Known Shape Based on Skewness and Kurtosis," (AFIT/GOR/ENC/99M-02), Faculty Advisor: Crown, Sponsor: HQ AFOTEC/TSE

Maj J. S. Park, "A New Sequential Goodness-of-Fit Test for a Family of Two-Parameter Gamma Distributions with Known Shape Based on Skewness and Q-Statistic," (AFIT/GOR/ENC/99M-03), Faculty Advisor: Crown, Sponsor: HQ AFOTEC/TSE

2d Lt J. M. Romaine, "Solving the Multidimensional Multiple Knapsack Problem with Packing Constraints Using Tabu Search," (AFIT/GOR/ENS/99M-15), Faculty Advisor: Bailey, Sponsor: AFSAA/SAG

Capt B. K. Sperling, "A Value Focused Approach to Determining the Top Ten Hazards in Army Aviation," (AFIT/GOR/ENS/99M-16), Faculty Advisor: Kloeber, Sponsor: US Army Safety Center

1st Lt A. D. Wallen, "Design and Analysis of on-Orbit Servicing Architectures for the Global Positioning System Constellation," (AFIT/GOR/ENY/99M-01), Faculty Advisor: Kramer, Sponsor: SMC/CZS

Capt J. G. Walston, "Unmanned Aerial Vehicle Mission Level Simulation," (AFIT/GOR/ENS/99M-17), Faculty Advisor: Bailey, Sponsor: UAV Battlelab

Capt M. F. Winthrop, "Selection of Best Technologies that Support the Warfighter for Air Vehicles Directorate," (AFIT/GOR/ENS/99M-18), Faculty Advisor: Deckro/Kloeber, Sponsor: AFRL/XP

SPACE OPERATIONS

2d Lt Amy M. Cox, "A Statistical Analysis of Space Structure Mode Localization," (AFIT/GSO/ENY/99M-01), Faculty Advisor: Agnes, Sponsor: AFOSR/NA

1st Lt Toby G. Doran, " Toward Development of An Integrate Aerospace Power Doctrine," (AFIT/GSO/ENY/99M-02) Faculty Advisors: Kramer and Murdock, Sponsor: AFSB/XSB

Capt Troy L. Endicott, " Space Launch Operations and The Lean Aerospace Initiative," (AFIT/GSO/ENY/99-M-03), Faculty Advisor: Franke, Sponsor: AFRL/MLMA

Capt Gregory G. Karahalis, " Whole Spacecraft Vibration Isolation," (AFIT/GSO/ENY/99M-5), Faculty Advisor: Agnes, Sponsor: AFRL/VSDV

Capt Thomas L. Miller Jr., "East Coat Abort Modeling with RTLS Elimination for the Space Shuttle-Liquid Fly Back Booster Launch System," (AFIT/GSO/ENY/99M-07), Faculty Advisor: Wiesel, Sponsor: LFBB, Boeing Defense Group, Seal Beach, CA

Capt David J. Vloedman, " Anti-ballistic Missile Laser Predictive Avoidance of Satellites: Theory and Software For Real-Time Processing and Deconfliction of Satellites With A Moving Platform Lase," (AFIT/GSO/ENY/99M-09), Faculty Advisor: Wiesel, Sponsor: BMV41 IPT/ABL Program, Boeing Defense and Space Group, Seattle, WA

SYSTEMS ENGINEERING

1st Lt O. Okuyucu, "Preliminary Design Of A Joint Simulation, Analysis, And Wargaming Center For The Turkish General Staff," (AFIT/GSE/ENY/98M-01), Faculty Advisor: Kramer, Sponsor: ASC/YPX-SNR-TK

Capt James E. Colebank, Capt R. Dan Jones, 1st Lt Donald M. Mannebach, Capt George R. Nagy, and Capt Randall D. Pollack, "SIMSAT: A Satellite System Simulator and Experimental Test Bed For Air Force Research," (AFIT/GSE/GSO/ENY/99M-1), Faculty Advisor: Kramer

Capt Steven A. Fischer, "Satellite Integrated Power and Attitude Control System Design Study," (AFIT/GSE/GSO/ENY/97D-1), Faculty Advisor: Kramer, Sponsor: AFRL/VSDV

3.8 SPONSORS OF MASTERS' THESES

NOTE: ( ) indicates page number

AIR COMBAT COMMAND

1st Lt E. M. Burke, "Quality Function Deployment from an Operations Research Perspective," (AFIT/GOR/ENS/99M-03), Faculty Advisor: Kloeber, Sponsor: HQ ACC/XP-SAS

Capt L. E. Champagne, "Evaluation and Analysis of EFX 98 Assessment Experiences and EFX 98 Assessment Evaluation," (AFIT/GOA/ENS/99M-04), Faculty Advisor: Hill/Bauer, Sponsor: AF Experimentation Office

Capt C.P. Roberts, "Environmental Management Strategies In Public Sector Organizations," (AFIT/GEE/ENV/99M-13), Faculty Advisor: Lofgren, Sponsor: HQ ACC/CEV

AEF BATTLELAB

Capt F. C. O'Fearna, "Reduction Of the Aircraft Ground Equipment Footprint of an Air Expeditionary Force," (AFIT/GOR/ENS/99M-14), Faculty Advisor: Hill, Sponsor: AEF Battlelab

COMMAND AND CONTROL BATTLELAB

Capt D. W. Franzen, "A Bayesian Decision Model for Battle Damage Assessment," (AFIT/GOA/ENS/99M-05), Faculty Advisor: Hill, Sponsor: Command and Control Battlelab

UAV BATTLELAB

1st Lt R.A. Flood, "A Java Based Human Computer Interface For A UAV Decision Support Tool Using Conformal Mapping," (AFIT/GCS/ENS/99M-01), Faculty Advisor: Bailey, Sponsor: UAV Battlelab

Capt K. P. O'Rourke, "Dynamic Unmanned Aerial Vehicle (UAV) Routing with a Java-Encoded Reactive Tabu Search Metaheuristic," (AFIT/GOA/ENS/99M-06), Faculty Advisor: Bailey, Sponsor: UAV Battlelab

Capt J. G. Walston, "Unmanned Aerial Vehicle Mission Level Simulation," (AFIT/GOR/ENS/99M-17), Faculty Advisor: Bailey, Sponsor: UAV Battlelab

AIR EDUCATION AND TRAINING COMMAND

AIR FORCE INSTITUTE OF TECHNOLOGY

1st Lt T. Altunbasak, "A Trade-Off Analysis For Quality Of Service In Real-Time Voice Over IP," (AFIT/GCE/ENG/99M-01), Faculty Advisor: Gunsch, Sponsor: AFIT/ENG

Maj D. A. Brown, "The Quota Allocation Model: The Linear Optimization of a Markov Decision Process," (AFIT/GOA/ENS/99M-03), Faculty Advisor: Moore, Sponsor: AFIT

Capt S.H. Chastain, "Integrated GPS/INS Precision Approach Landing With M3AE Interference Avoidance," (AFIT/GE/ENG/99M-03), Faculty Advisor: Miller, Sponsor: AFIT/ENG

Capt James E. Colebank, Capt R. Dan Jones, 1st Lt Donald M. Mannebach, Capt George R. Nagy, and Capt Randall D. Pollack, "SIMSAT: A Satellite System Simulator and Experimental Test Bed For Air Force Research," (AFIT/GSE/GSO/ENY/99M-1), Faculty Advisor: Kramer, Sponsor: AFIT/ENY

1st Lt M. Eravsar, "A Comparison of Genetic Algorithms' Parameterization on Synthetic Test Problems," (AFIT/GOR/ENS/99M-05), Faculty Advisor: Hill, Sponsor: AFIT/ENS

2d Lt K.A. Ercakar, "A Performance Analysis of a Low Earth Orbit Satellite System," (AFIT/GCE/ENG/99J-01), Faculty Advisor: Raines, Sponsor: AFIT/ENG

Capt Jay Foil, "Use of Diffuse Reflectance Spectroscopy to Determine Desorption Coefficients of Trichloroethylene from Powdered Soils,"(AFIT/GAP/ENP/99M-02), Faculty Advisor: Wolf, Sponsor: AFIT

Capt A.L. Gepner, Jr., "Textual Analysis of Environmental Compliance Assessment Program Findings," (AFIT/GEE/ENV/99M-05), Faculty Advisor: Lofgren, Sponsor: AFIT

Capt N.W. Kassel, "Development Of Site Characterization Simulator," (AFIT/GEE/ENG/99M-01), Faculty Advisor: Goltz, Sponsor: AFIT/CEV

2d Lt D. A. Koewler, "An Approach for Tasking Allocated Combat Resources to Targets," (AFIT/GOR/ENS/99M-08), Faculty Advisor: Deckro, Sponsor: AFIT, AFOSR

Capt T. Lee, "A Web-based Prototype System for AFIT Edplan Administration," (AFIT/GCS/ENG/98D-02), Faculty Advisor: Talbert, Sponsor: AFIT/RRD

Capt C.G. Marks, "Extensible Multi-Agent System For Heterogeneous Database Mining And Verification Association Rule Mining and Unification," (AFIT/GCS/ENG/99M-12), Faculty Advisor: DeLoach, Sponsor: AFIT/ENG

2d Lt D. T. Mills, "Two-Stage Stochastic Linear Programming with Recourse: A Characterization of Local Regions using Response Surface Methodology," (AFIT/GOR/ENS/99M-11), Faculty Advisor: Bailey, Sponsor: AFIT/ENS

1st Lt S. L. Naylor, "Portfolio Selection of Innovative Technologies Via Life Cycle Cost Modeling," (AFIT/GOR/ENS/99M-12), Faculty Advisor: Deckro/Moore, Sponsor: AFIT/ENS

Capt L.F. Silva, "Parallel Digital Asignal Processing On a Network of Personal Computers Case Study: Spacetime Adaptive Processing," (AFIT/GCS/ENG/99J-01), Faculty Advisor: Lamont, Sponsor: AFIT/ENG

AIR FORCE

Capt D.J. Anason, "Exploring the Management of Outsourcing and the Determination of Civil Engineering Minimum Manning Numbers in Order to Optimize Air Force Benefits," (AFIT/GEE/ENV/99M-01), Faculty Advisor: Shelley, Sponsor: HQ USAF/ILEIO

Capt R.A. Favorito & 1st Lt D.M. McIllece, "Analysis of USAF Battlelab's Communication Infrastructure Over Various Protocols," (AFIT/GCS/ENG/99M-04), Faculty Advisor: Raines, Sponsor: HQ USAF/XORPB

Capt E.L. Hill, "The Determinants of Locational Choice for Air Force Military Renters: Implication for Policy," (AFIT/GEE/ENV/99M-08), Faculty Advisor: Lofgren, Sponsor: HQ USAF/ILEH

Capt T.W. Johannes, "Optimal Pulsed Pumping Schedule Using Calculus of Variation Methodology," (AFIT/GEE/ENC/99M-01), Faculty Advisor: Oxley, Sponsor: HQ AFCEE/ERC

Capt M.J. Johnson, "Individual Housing Choices Among Air Force Members," (AFIT/GEE/ENV/99M-10), Faculty Advisor: Nixon, Sponsor: USAF/ILEH

1st Lt J.R. Palmer, "Concept Design and Optimization of a MSW Material Recovery System," (AFIT/GEE/ENV/99M-12), Faculty Advisor: Nixon, Sponsor: 52 CES/CEV

2d Lt J. M. Romaine, "Solving the Multidimensional Multiple Knapsack Problem with Packing Constraints Using Tabu Search," (AFIT/GOR/ENS/99M-15), Faculty Advisor: Bailey, Sponsor: AFSAA/SAG

Capt J.S. Romasz, "Analysis of Cost Growth In U.S. Air Force Base Support Function Contracts," (AFIT/GEE/ENV/99M-14), Faculty Advisor: Nixon, Sponsor: HQ USAF/IELIO

Capt S.C. Thompson, "Decision Analysis Methodology To Evaluate Organization Strategies For The Civil Engineer Operations Flight," (AFIT/GEE/ENV/99M-15), Faculty Advisor: Lofgren, Sponsor: 314 TRW/CES

Maj T. R. Tighe, "Strategic Effects of Airpower and Complex Adaptive Agents: An Initial Investigation," (AFIT/GOA/ENS/99M-09), Faculty Advisor: Hill, Sponsor: AF/XOC, AFSAA

AIR FORCE MATERIEL COMMAND

Capt B.D. Benter, "Substrate Availability in Solid Waste Landfills," (AFIT/GEE/ENV/99M-03), Faculty Advisor: Nixon and Shelley, Sponsor: HQ AFCEE/ERC and HQ AFMC/CEVR

Capt Marc Sands, "An Investigation into the Noninvasive Assessment of Bone Density Using Multiplexed Compton Scattered Tomography," (AFIT/GAP/ENP/99M-10), Faculty Advisor: Martin, Sponsor: 74th Med Group Wright Patterson Medical Center

AERONAUTICAL SYSTEMS CENTER

Capt C.A. Bohn, "Asymmetric Load Balancing On A Heterogeneous Cluster Of PCs," (AFIT/GE/ENG/99M-02), Faculty Advisor: Lamont, Sponsor: ASC/HP

Capt J.G. Cochran, "TE Scattering From Bubbles In RAM," (AFIT/GE/ENG/99M-04), Faculty Advisor: Collins, Sponsor: ASC/ENAD

Capt M. E. Delory, "AMRAAM Fleet Life Cycle Simulation," (AFIT/GOR/ENS/99M-04), Faculty Advisor: Murdock/Miller, Sponsor: ASC/YAA

Capt R.L. Eigel, "Radar Cross-Section (RCS) Characterization of Complex Objects," (AFIT/GE/ENG/99J-01), Faculty Advisor: Terzuoli, Sponsor: ASC/ENAD

Capt S.R. Graham, "An Immersive User Interface For The Cave Automatic Virtual Environment,"(AFIT/GE/ENG/99M-12), Faculty Advisor: Jacobs, Sponsor: ASC/YCA

2d Lt G.M. Harrison, "A Real-Time Airdrop Visualization in a Virtual Environment," (AFIT/GCS/ENG/99M-07), Faculty Advisor: Jacobs, Sponsor: ASC/YC

1st Lt O. Okuyucu, "Preliminary Design Of A Joint Simulation, Analysis, And Wargaming Center For The Turkish General Staff," (AFIT/GSE/ENY/98M-01), Faculty Advisor: Kramer, Sponsor: ASC/YPX-SNR-TK

Maj T. S. Szvetecz, "C-17 Strategic Airdrop Simulation and Analysis," (AFIT/GOA/ENS/99M-08), Faculty Advisor: Bailey, Sponsor: ASC/YC

Capt B.J. Young, "An Integrated Synthetic Aperture Radar/Global Positioning System/Inertial Navigation System For Target Geolocation Improvement," (AFIT/GE/ENG/99M-32), Faculty Advisor: M.M. Miller, Sponsor: ASC/RAP

88th WEATHER SQUADRON

Capt Robert Hauser, "Survey of Military Applications for Fourier-Transform Infrared (FTIR) Spectroscopy," (AFIT/GM/ENP/99M-07), Faculty Advisor: Perram, Sponsor: 88th WX Squadron

Capt Darrell Kerr, "A Validation Study of Cloud Scene Simulation Model Temporal Performance," (AFIT/GM/ENP/99M-08), Faculty Advisor: Walters, Sponsor: 88th WX Squadron/WEA

AIR FORCE OFFICE OF SCIENTIFIC RESEARCH

Capt K.J. Cardinale, "A Constructive Induction Approach to Computer Immunology," (AFIT/GCE/ENG/99M-03), Faculty Advisor: Gunsch, Sponsor: AFOSR/MSS

2d Lt Amy M. Cox, "A Statistical Analysis of Space Structure Mode Localization," (AFIT/GSO/ENY/99M-01), Faculty Advisor: Agnes, Sponsor: AFOSR/NA

2d Lt D. A. Koewler, "An Approach for Tasking Allocated Combat Resources to Targets," (AFIT/GOR/ENS/99M-08), Faculty Advisor: Deckro, Sponsor: AFIT, AFOSR

Capt T. I. Laine, "Selection of Psychophysiological Features Across Subjects for Classifying Workload Using Artificial Neural Networks (ANNs)," (AFIT/GOR/ENS/99M-09), Faculty Advisor: Bauer, Sponsor: AFOSR/NL, AFRL/HECP

2d Lt T.A. Niday, "Inelastic Scattering Matrix Elements for the Collision $B(^2P_{1/2}) + H_2(j)$ $B(^2P_{3/2}) + H_2(j)$," (AFIT/GAP/ENP/99M-06), Faculty Advisor: Weeks, Sponsor: AFOSR/NL

2d Lt H. M. O'Donnell, "A Constructive Induction Approach to Computer Immunology," (AFIT/GCS/ENG/99M-02), Faculty Advisor: Gunsch, Sponsor: AFOSR/DMSS

Capt S.M. Spottswood, "Progressive Failure Analysis Of Composite Panels," (AFIT/GAE/ENY/99M-08), Faculty Advisor: Palazotto, Sponsor: AFOSR/NA

AIR FORCE RESEARCH LABORATORY

Capt S.L. Anason, "Cost-Benefit Analysis of Cosolvent Flushing to Treat NAPL's at Contaminated Sites," (AFIT/GEE/ENV/99M-02), Faculty Advisor: Goltz, Sponsor: AFRL/MLQE

Capt G.L. Anderson, "An Interactive Tool for Refining Software Specifications from a Formal Domain Model," (AFIT/GCS/ENG/99M-01), Faculty Advisor: Hartrum, Sponsor: AFRL/IFTD

Capt David Bacot, "Visualizing the Impact of Multivariate Meteorological Input Error on Electro-Optical Tactical Decision and Output," (AFIT/GM/ENP/99M-02), Faculty Advisor: Walters, Sponsor: AFRL/VSBE

Capt D.J. Barnhart, "An Improved Asynchronous Implementation Of A Fast Fourier Transform Architecture For Space Applications," (AFIT/GE/ENG/99M-01), Faculty Advisor: C. Brothers, Sponsor: AFRL/VSSE

1st Lt C. B. Bassham, "Visualizing Early-Stage Breast Cancer Tumors in a Mammographic Environment Through a 3-Dimensional Mathematical Model, " (AFIT/GOA/ENS/99M-01), Faculty Advisor: Bauer, Sponsor: AFRL

Capt Barry Behnken, "Kinetic Model of a Space-Based BR Laser Pumped by Solar Photolysis of 1BR", (AFIT/GAP/ENP/99M-01), Faculty Advisor: Perram, Sponsor: AFRL/DEL

Capt B.W. Burke, "Biodegradation Of Aircraft Deicing Fluid Components In Soil," (AFIT/GEE/ENV/99M-04), Faculty Advisor: Bleckmann, Sponsor: AFRL/MLSE

Capt M.J. Chapa, "A Nonlinear Pre-Filter To Prevent Departure And/Or Pilot-Induced Oscillations Due To Actuator Rate Limiting," (AFIT/GAE/ENY/99M-01), Faculty Advisor: Liebst, Sponsor: AFRL/VAAD

Mr. C.R. Colon, "An Efficient GPS Position Determination Algorithm," (AFIT/GE/ENG/99M-33), Faculty Advisor: Pachter, Sponsor: AFRL/VAAD

1st Lt E. Colonese, "Methodology for Integrating the Scenario Database of Simulation Systems," (AFIT/GCS/ENG/99J-03), Faculty Advisor: Hartrum, Sponsor: AFRL/SNZW

Capt D.S. Conley, "Fatigue Response of Repaired Thick Aluminum Panels With Bondline Flaws," (AFIT/GAE/ENY/99M-03), Faculty Advisor: Mall, Sponsor: AFRL/VASE

2d Lt J.M. Corneille, "Wind Tunnel Investigation Of Joined Wing Configuration," (AFIT/GAE/ENY/99J-02), Faculty Advisor: Franke, Sponsor: AFRL/MNAV

Capt M.D. Craig, "An Empirical Prediction Model Of Tolerance Effects On Frequency Selective Surfaces Using The Monte Carlo Method," (AFIT/GE/ENG/99M-05), Faculty Advisor: Collins, Sponsor: AFRL/XPN

1st Lt B.J. Crothers, "Radar Cross-Section Enhancement Of Simple Targets," (AFIT/GE/ENG/99M-06), Faculty Advisor: Pyati, Sponsor: AFRL/XPN

1st Lt C.J. Davis, "Solving An Inverse Control Problem Using Predictive Methods," (AFIT/GAE/ENY/99M-05), Faculty Advisor: Heise, Sponsor: AFRL/VAAD

Capt K.R. Deerman, "Protein Structure Prediction Using Parallel Linkage Investigating Genetic Algorithms," (AFIT/GCS/ENG/99M-03), Faculty Advisor: Lamont, Sponsor: AFRL/MLPJ

Capt F.L. Dement, "Effects Of Pressure Gradients on Turbulent Boundary Layer Flow Over a Flat Plate With Riblets," (AFIT/GAE/ENY/99M-09), Faculty Advisor: King, Sponsor: AFRL/PRTT

Capt Troy L. Endicott, " Space Lauch Operations and The Lean Aerospace Initiative," (AFIT/GSO/ENY/99-M-03), Faculty Advisor: Franke, Sponsor: AFRL/MLMA

2d Lt K.A. Fisher, "Multiple Model Adaptive Estimation Using Filter Spawning," (AFIT/GE/ENG/99M-09), Faculty Advisor: Maybeck, Sponsor: AFRL/VACC

Capt Steven A. Fischer, "Satellite Integrated Power and Attitude Control System Design Study," (AFIT/GSE/GSO/ENY/97D-1), Faculty Advisor: Kramer, Sponsor: AFRL/VSDV

Capt A.P. Ford, "Computation Of Scattering From Bodies Of Revolution Using An Entire Domain Basis Implementation Of The Moment Method," (AFIT/GE/ENG/99M-10), Faculty Advisor: Collins, Sponsor: AFRL/XPN

2d Lt C.A. Garrett, "Optimization of In Situ Aerobic Cometabolic Bioremediation Of Trichloroethylene-Contaminated Groundwater Using A Parallel Genetic Algorithm," (AFIT/GEE/ENG/99M-02), Faculty Advisor: Goltz, Sponsor: AFRL/MLQE

Capt David Gerts, "Characterization of the Double Scatter Spectrum in Multiplexed Compton Scatter Tomography," (AFIT/GAP/ENP/99M-03), Faculty Advisor: Martin, Sponsor: AFRL/MLLP

Capt A.M. Gillman, "Non Co-Operative Detection Of LPI/LPD Signals Using Cyclic Spectral Analysis," (AFIT/GE/ENG/99M-11), Faculty Advisor: Temple, Sponsor: AFRL/SNZW

Capt R.G. Glassco, "Closely Supervised Reactive Control Of An Uninhabited Aerial Vehicle," (AFIT/GAE/ENY/99J-01), Faculty Advisor: Spenny, Sponsor: AFRL/HEC

1st Lt L.P. Hammack, "Parallel Data Mining With The Message Passing Interface Standard on Clusters Of Personal Computers," (AFIT/GCS/ENG/99M-06), Faculty Advisor: Lamont, Sponsor: AFRL/IFTA

1st Lt A.G. Harris, "Robust Eigenstructure Assignment Using Positive Definite Output Feedback Control," (AFIT/GAE/ENY/99M-06), Faculty Advisor: Liebst, Sponsor: AFRL/VSOC

Capt R.H. Hartz, "Methodogy for Application Design Using Information Dissemination and Active Database Technologies," (AFIT/GCS/ENG/99M-08), Faculty Advisor: Potoczny, Sponsor: AFRL/SNAA

2d Lt J.M. Hemmes, "Modeling Chemical Absorption Through Membranes," (AFIT/GCS/ENC/99M-01), Faculty Advisor: Quinn, Sponsor: AFRL/HEST

1st Lt B.M. Huether, "Optimal Wavelet Denoising for High Range Resolution Radar Classification," (AFIT/GE/ENG/99M-14), Faculty Advisor: Gustafson, Sponsor: AFRL/SNZT

Maj J.K. Joo, "The Simulation Modeling and Analysis of Wireless Local Area Networks Supporting the IEEE 802.11 Standard," (AFIT/GCS/ENG/98D-01), Faculty Advisor: Raines, Sponsor: AFRL/IFSD

Capt Gregory G. Karahalis, "Whole Spacecraft Vibration Isolation," (AFIT/GSO/ENY/99M-5), Faculty Advisor: Agnes, Sponsor: AFRL/VSDV

1st Lt D.L. Kellner, "Sorption Of The Aircraft Deicing Fluid Component Methyl-Benzotriazole In Soil," (AFIT/GEE/ENV/99M-11), Faculty Advisor: Bleckmann, Sponsor: AFRL/MLQ

1st Lt J.A. Kissack, "Transforming Aggregate Object-Objected Formal Specifications To Code," (AFIT/GCS/ENG/99M-09), Faculty Advisor: Hartrum, Sponsor: AFRL/IFTD

2d Lt J.M. Kos, "Graphical User Interface And Microprocessor Control Enhancement Of A Pseudorandom Code Generator," (AFIT/GE/ENG/99M-15), Faculty Advisor: Temple, Sponsor: AFRL/SNRW

Capt T. I. Laine, "Selection of Psychophysiological Features Across Subjects for Classifying Workload Using Artificial Neural Networks (ANNs)," (AFIT/GOR/ENS/99M-09), Faculty Advisor: Bauer, Sponsor: AFOSR/NL, AFRL/HECP

Capt Kelly Law, "Validation of the Gallagher Protonospheric Model," (AFIT/GAP/ENP/99M-04), Faculty Advisor: Goldizen, Sponsor: AFRL/VS

Capt A.W. Learn, "Target Pose Estimation from Radar Data Using Adaptive Networks," (AFIT/GCS/ENG/99M-10), Faculty Advisor: Gustafson, Sponsor: AFRL/SNAT

Capt A. MacDonald, "Classification Of High Range Resolution Radar Returns Using Hidden Markov and Gaussian Mixture Models," (AFIT/GE/ENG/99M-16), Faculty Advisor: Rogers, Sponsor: AFRL/SNZT

2d Lt R. Mediavilla, "Terrain Backscattering Coefficient Generator," (AFIT/GE/ENG/99M-18), Faculty Advisor: Pyati, Sponsor: AFRL/SNAS

Capt D.L. Moraes, "Transforming COBOL Legacy Software To A Generic Imperative Model," (AFIT/GCS/ENG/99M-22), Faculty Advisor: Graham, Sponsor: AFRL/IFTD

2d Lt Christian Morath, "Electrical Characterization of Ion Implanted 4H-Silicon Carbide," (AFIT/GAP/ENP/99M-05), Faculty Advisor: Yeo, Sponsor: AFRL/MLPO

1st Lt P.A. Noe, "A Structured Approach to Software Tool Integration," (AFIT/GCS/ENG/99M-14), Faculty Advisor: Hartrum, Sponsor: AFRL/IFTD

Capt R.C. Novack, "High Range Resolution (HRR) Profiling Using Phase-Coded, Stepped-Frequency Radar Waveforms," (AFIT/GE/ENG/99M-20), Faculty Advisor: Temple, Sponsor: AFRL/SNAS

Capt S.J. Novotny, "Band Structure Anisotropy in Semiconductor Quantum Wells," (AFIT/GAP/ENP/99M-07), Faculty Advisor: Weeks, Sponsor: AFRL/DELS.

Capt W.N. O'Connor, "Low Grazing Angle Terrain Backscattering Coefficient Generator," (AFIT/GE/ENG/99M-21), Faculty Advisor: Pyati, Sponsor: AFRL/SNAS

Capt T.I. Page, "Incorporating Scene Mosaics As Visual Indexes Into UAV Video Imagery DataBases," (AFIT/GCS/ENG/99M-16), Faculty Advisor: Talbert, Sponsor: AFRL/IFEC

2d Lt D.J. Petrovich, "Structural Emergence and the Collaborative Behavior of Nano-Satellites," (AFIT/GE/ENG/99M-22), Faculty Advisor: Gustafson, Sponsor: AFRL/ATT

2d Lt O.A. Powell, "Heat Transfer To The Inclined Trailing Wall Of An Open Cavity," (AFIT/GAE/ENY/99M-07), Faculty Advisor: Bons, Sponsor: AFRL/PRSS

Capt S.R. Pratt, "A Performance Analysis of Dynamics Routing Algorithms in an Iridium-Like Low Earth Orbit Satellite System," (AFIT/GCE/ENG/99M-04), Faculty Advisor: Raines, Sponsor: AFRL/IFG

Capt A.W. Proud, "Close Formation Flight Control," (AFIT/GE/ENG/99M-24), Faculty Advisor: Pachter, Sponsor: AFRL/VAAD

1st Lt B.L. Pyburn, "Analysis of the Applicability of Video Segmentation to Unmanned Aerial Vehicle Surveillance Video," (AFIT/GCS/ENG/99M-17), Faculty Advisor: Talbert, Sponsor: AFRL/IFEC

Capt Bradley Rennich, "Active Multispectral Band Selection and Reflectance Measurement System," (AFIT/GEO/ENP/99M-01), Faculty Advisor: Roh, Sponsor: AFRL/SNJ

1st Lt Blake Rodgers, "Laser Beam Combining and Cleanup Via Stimulated Brillouin Scattering in Multimode Optical Fibers," (AFIT/GAP/ENP/99M-09), Faculty Advisor: Roh, Sponsor: AFRL/DELS

Capt S. Rodrigues, "COBOL Reengineering Using the Parameter-Based Object Identification (PBOI) Methodology," (AFIT/GCS/ENG/99J-02), Faculty Advisor: Graham, Sponsor: AFRL/IFTD

Capt P.C. Rounsavall, "Modulation Of Electrostatic Microelectromechanical Mirrors Using A CMOS Controller," (AFIT/GE/ENG/99M-25), Faculty Advisor: C. Brothers, Sponsor: AFRL/VSSE

Capt K.C. Schloer, "Antenna Gain Enhancement Using A Photonic Band Gap Reflector," (AFIT/GE/ENG/99M-26), Faculty Advisor: Collins, Sponsor: AFRL/SNRP

2d Lt J.P. Sillence, "Loop Gain Estimation For Adaptive Control," (AFIT/GE/ENG/99M-27), Faculty Advisor: Pachter , Sponsor: AFRL/VAAD

Capt Brian Smith, "A Continuous Wave Atomic Bromine Laser Produced by Photolysis of Iodine Monobromide," (AFIT/GAP/ENP/99J-12), Faculty Advisor: Perram, Sponsor: AFRL/DEL

Capt Christopher Smithtro, "Numerical Solutions to the Two-Dimensional Boltzmann Equation," (AFIT/GAP/ENP/99J-13), Faculty Advisor: Bailey, Sponsor: AFRL/PR

Capt B.W. St Germain, "Tip Vortex And Crenulation Effects In A Compressor Cascade With Moving Endwall," (AFIT/GAE/ENY/99M-02), Faculty Advisor: King, Sponsor: AFRL/PRTF

2d Lt P.J. Swackhammer, "Design And Simulation Of A Multiple Access Transform Domain Communication System," (AFIT/GE/ENG/99M-28), Faculty Advisor: Temple, Sponsor: AFRL/SNRW

Capt P.G. Stratton, "A Metrics-Based Analysis Of Interface Usability Improvements By Applying Intelligent Agents," (AFIT/GCS/ENG/99M-18), Faculty Advisor: DeLoach, Sponsor: AFRL/SNZW

2d Lt T.W. Tankersley, "Generating Executable Code from Formal Specifications of Primitive Objects," (AFIT/GCS/ENG/99M-19), Faculty Advisor: Graham, Sponsor: AFRL/IFTD

Capt Frank Tersigni, "Space Charge Structure of a Glow Discharge in the Presence of Longitudinal Inhomogeneity," (AFIT/GAP/ENP/99J-14), Faculty Advisor: Bailey, Sponsor: AFRL/PR

Capt T.S. Utton, "Ultra-Wideband Tem Horns, Transient Arrays and Exponential Curves: A FDTD Look," (AFIT/GE/ENG/99M-29), Faculty Advisor: Terzuoli, Sponsor: AFRL/DEHP

2d Lt B.J. Vanek, "GPS Signal Offset Detection and Noise Strength Estimation In A Parallel Kalman Filter Algorithm," (AFIT/GE/ENG/99M-30), Faculty Advisor: Maybeck, Sponsor: AFRL/SNAR

1st Lt D.D. Veerkamp, "Natural Attenuation Of Chlorinated Ethenes By Anaerobic Reductive Dechlorination Coupled With Aerobic Cometabolism," (AFIT/GEE/ENV/99M-16), Faculty Advisor: Goltz, Sponsor: AFRL/MLQE

Capt P.N. Villanueva, "Application Of The Finite Element Method To The Scattering Of A Two-Dimensional, Semi-Infinite Periodic Structure," (AFIT/GE/ENG/99M-31), Faculty Advisor: Collins, Sponsor: AFRL/XPN

Capt Shannon Walker, "Double Layer Effects on Shock Wave Propagation," (AFIT/GAP/ENP/99J-15), Faculty Advisor: Bailey, Sponsor: AFRL/PR

Capt R.J. Weber, "Extracting A Common Object Model for DoD Simulation Systems," (AFIT/GCS/ENG/99M-20), Faculty Advisor: Potoczny, Sponsor: AFRL/SNZW

Capt S.P. Williams, "Space Maneuver Vehicle Orbital Mission Planner: Development Of Application And Analysis Of On-Demand Maneuvering Ability," (AFIT/GA/ENY/99M-02), Faculty Advisor: Wiesel, Sponsor: AFRL/VSDV

Capt M. F. Winthrop, "Selection of Best Technologies that Support the Warfighter for Air Vehicles Directorate," (AFIT/GOR/ENS/99M-18), Faculty Advisor: Deckro/Kloeber, Sponsor: AFRL/XP

SPACE AND MISSILE SYSTEMS CENTER

Capt A.J. Feltman, "Trade-off Analysis Of Communications Capabilities Of Intersatellite Links," (AFIT/GE/ENG/99M-08), Faculty Advisor: Raines, Sponsor: SMC/XRI

Capt G.A. Leisman & 1st Lt A.D. Wallen, "Design And Analysis Of On-Orbit Servicing Architectures For The Global Positioning System Constellation," (AFIT/GA/GOR/99M-01), Faculty Advisor: Kramer, Sponsor: SMC/CZS

1st Lt A. D. Wallen, "Design and Analysis of on-Orbit Servicing Architectures for the Global Positioning System Constellation," (AFIT/GOR/ENY/99M-01), Faculty Advisor: Kramer, Sponsor: SMC/CZS

AIR FORCE OPERATIONAL TEST AND EVALUATION CENTER

1st Lt T. Memis, "A New Sequential Goodness-of-Fit Test for the Three-Parameter Weibull Distribution with Known Shape Parameter Value Based on the Skewness and the Q-Statistic GOF Test Statistics," (AFIT/GOR/ENC/99M-01), Faculty Advisor: Crown, Sponsor: HQ AFOTEC/TSE

Maj C. H. Park, "A New Sequential Goodness-of-Fit Test for a Family of Two-Parameter Gamma Distributions with Known Shape Based on Skewness and Kurtosis," (AFIT/GOR/ENC/99M-02), Faculty Advisor: Crown, Sponsor: HQ AFOTEC/TSE

Maj J. S. Park, "A New Sequential Goodness-of-Fit Test for a Family of Two-Parameter Gamma Distributions with Known Shape Based on Skewness and Q-Statistic," (AFIT/GOR/ENC/99M-03), Faculty Advisor: Crown, Sponsor: HQ AFOTEC/TSE

AIR FORCE PERSONNEL OPERATIONS AGENCY

Capt M. P. Gaupp, "Pilot Inventory Complex Adaptive System (PICAS): An Artificial Life Approach to Managing Pilot Retention," (AFIT/GOR/ENS/99M-06), Faculty Advisor: Hill, Sponsor: AFPOA

AIR FORCE SPACE COMMAND

Capt Travis A. Steen, "Forecasting Downdraft Wind Speeds Associated with Airmass Thunderstorms for Peterson Air Force Base, Colorado, Using the WSR-88D," (AFIT/GM/ENP/99M-10); Faculty Advisor: Miner; Sponsor: HQ AFSPC/DORW

SPACE BATTLELAB

Capt M. K. Betts, "Applying Value-Focused Thinking to Eliminating Enemy Satellite Capabilities," (AFIT/GOR/ENS/99M-02), Faculty Advisor: Murdock, Sponsor: Space Battlelab

1st Lt Toby G. Doran, " Toward Development of An Integrated Aerospace Power Doctrine," (AFIT/GSO/ENY/99M-02) Faculty Advisors: Kramer and Murdock, Sponsor: AFSB/XSB

SPACE WARFARE CENTER

Capt F. N. Nelson, "A Validation Assessment of THUNDER 6.5's Intelligence, Surveillance, and Reconnaissance Module," (AFIT/GOR/ENS/99M-13), Faculty Advisor: McIntyre, Sponsor: Space Warfare Center

AIR FORCE TECHNICAL APPLICATIONS CENTER

Capt Brad L. Beatty, "Analysis of a Simple Model of the Accumulation and Depletion of Fuel Radionuclides in Selected Nuclear Reactors", AFIT/GAP/ENP/96D-2, (Completed 8 Mar 1999) Advisor: Mathews, Sponsor: AFTAC/TMAR

Capt Michael J. Murphy, "Modeling Four-Component Uranium Gaseous Diffusion Enrichment Cascades," (AFIT/GAP/ENP/99J-01), Advisor: Mathews, Sponsor: AFTAC

1st Lt Dennis Rand, "Characterization of Weathering in Uranium Oxide Particles by Raman Photoluminescence and Infrared Spectroscopy," (AFIT/GAP/ENP/99M-08), Faculty Advisor: Martin, Sponsor: AFTAC/TMA

1st Lt Robert Russ, "Estimating the Height of the Planetary Boundary Layer for Diffusion-Transport Atmospheric Models: A Four Algorithm," (AFIT/GM/ENP/99M-09), Faculty Advisor: Walters, Sponsor: AFTAC/TKME

Capt Scott H. Sinkular, "Dose Rate Estimates for Reprocessing Spent Nuclear Fuel," (AFIT/GAP/ENP/99M-11), Advisor: Mathews, Sponsor: AFTAC/TMAR

AIR FORCE WEATHER AGENCY

Capt Mark Adair, "A Refinement and Cross-Validation of the Special Sensor Microwave Imager (SSM/I) Calibration-Validation (LV)", (AFIT/GM/ENP/99M-01), Faculty Advisor: Goldizen, Sponsor: HQ AFWA/DNXM

45TH WEATHER SQUADRON (CAPE CANAVERAL/KENNEDY SPACE CENTER)

Capt Christopher C. Cox, "A Comparison of Horizontal Cloud-to-Ground Lightning Flash Distance Using Weather Surveillance Radar and the Distance Between Successive Flashes Method,"(AFIT/GM/ENP/99M-03); Advisor: Miner; Sponsor: 45th Weather Squadron (Cape Canaveral/Kennedy Space Center)

1st Lt John Crane, "Improving Cape Canaveral's Next-Day Thunderstorms Forecasting Using a Meso-ETA Model-Based Index," (AFIT/GM/ENP/99M-04), Faculty Advisor: Walters, Sponsor: 45 WS/SYR

1st Lt Michael W. Engel, "Evaluation of Barnes' Method and Kriging for Estimating the Low Level Wind Field," (AFIT/GM/ENP/99M-05); Advisor: Miner; Sponsor: 45th Weather Squadron (Cape Canaveral/Kennedy Space Center)

Capt James Everitt, "An Improved Thunderstorm Forecast Index for Cape Canaveral Florida," (AFIT/GM/ENP/99M-06), Faculty Advisor: Miner, Sponsor: 45WS/SYR

Capt Steven J. Storch, "Predicting Launch Pad Winds at the Kennedy Space Center with a Neural Network Model," (AFIT/GM/ENP/99M-11); Advisor: Miner; Sponsor: 45th Weather Squadron (Cape Canaveral/Kennedy Space Center)

1st Lt Gerald Sullivan, "Using the WSR-88D to Forecast Downburst Winds at Cape Canaveral Air Station and the Kennedy Space Center," (AFIT/GM/ENP/99M-12), Faculty Advisor: Walters, Sponsor: 45th WS/SYR

AIR INTELLIGENCE AGENCY

Capt C.J. Fogle, "Strategies for Steganalysis of Bitmap Graphics Files," (AFIT/GCS/ENG/99M-05), Faculty Advisor: Potoczny, Sponsor: NAIC/TAC

Capt B.J. Mortenson, "The Effect Of Registration Errors On Tracking In A Networked Radar System," (AFIT/GE/ENG/99M-19), Faculty Advisor: Gustafson, Sponsor: NAIC/TAER

Capt T.S. Pittman, "A Climatology-Based Model For Long-Term Prediction Of Radar Beam Refraction," (AFIT/GE/ENG/99M-23), Faculty Advisor: Pyati, Sponsor: NAIC/TAER

AIR MOBILITY COMMAND

Capt T. W. Albrecht, "Modeling and Analysis of Aerial Port Operations, " (AFIT/GOR/ENS/99M-01), Faculty Advisor: Bauer, Sponsor: HQ AMC/XPY   •

Maj D. M. Ryer, "Implementation of the Metaheuristic Tabu Search in Route Selection for Mobility Analysis Support System," (AFIT/GOA/ENS/99M-07), Faculty Advisor: Bailey, Sponsor: AMC/XPY

Maj D. W. Williams, "An Evaluation and Comparison of the ACE and BRACE Airfield Models," (AFIT/GOA/ENS/99M-10), Faculty Advisor: Bauer, Sponsor: HQ AMC/XPY

ARMY

US ARMY EDGEWOOD CHEMICAL BIOLOGICAL CENTER

2d Lt Janine Wiggins, "Optimization of a Multilayer Photothermal Sensor for Infrared Spectroscopy," (AFIT/GAP/ENP/99J-16), Faculty Advisor: Burggraf, Sponsor: HQ CBDCOM/SCBRD

US ARMY RECRUITING COMMAND

Capt E. L. McLarney, "Using Simulation to Model the Army Recruiting Station with Multi-Quality Prospects," (AFIT/GOR/ENS/99M-10), Faculty Advisor: J.O. Miller, Sponsor: US Army Recruiting Command

US ARMY SAFETY CENTER

Capt B. K. Sperling, "A Value Focused Approach to Determining the Top Ten Hazards in Army Aviation," (AFIT/GOR/ENS/99M-16), Faculty Advisor: Kloeber, Sponsor: US Army Safety Center

ATLANTIC COMMAND

JOINT COMMAND & CONTROL WARFARE CENTER

1st Lt P. M. Kerchner, Jr, "A Value-Focused Approach to Psychological Operations," (AFIT/GOR/ENS/99M-07), Faculty Advisor: Deckro, Sponsor: JCCWC

AUSTRALIAN DEPARTMENT OF DEFENCE

Maj K.E. Crowe, "A Comparative Analysis of the Iridium and Globalstar Satellite System Transmission Paths," (AFIT/GSO/ENG/99M-01), Faculty Advisor: Raines, Sponsor: Dept of Defense, Australia

BRAZILIAN AIR FORCE

1st Lt A.G. Valente, "Analysis of N-Tier Architecture Applied to Distributed Database Systems," (AFIT/GCE/ENG/99J-04), Faculty Advisor: Lamont, Sponsor: Brazilian Air Force

CANADIAN FORCES

Maj K.D. Johnston, "Analysis of Radio Frequency Interference Effects On a Modern Code GPS Receiver," (AFIT/GSO/ENG/99M-02), Faculty Advisor: Miller, Sponsor: CFB Winnipeg

DEPARTMENT OF DEFENSE

DEFENSE INFORMATION SYSTEMS AGENCY

Capt D.R. Lomsdalen, "A Modeling and Simulation Approach To Analyze The Workload Analysis Of Network Router Access List Growth," (AFIT/GCS/ENG/99M-11), Faculty Advisor: Gunsch, Sponsor: DISA/JEEBC

DEFENSE THREAT REDUCTION AGENCY

Capt Craig F. Lamarche, "Performance Evaluation of the Nuclear Weapon (NWPN) Source Model for the Hazard Prediction and Assessment Capability (HPAC) Code," (AFIT/GAP/ENP/99S-01), Faculty Advisor: Jodoin, Sponsor: DTRA/CP

Capt Mark Wittig, "Implementation of a Two-Dimensional Hydrodynamics Shock Code Based Upon the Weighted Average Flux Method," (AFIT/GAP/ENP/99J-01), Faculty Advisor: Mathews, Sponsor: DTRA

NATIONAL SECURITY AGENCY

Capt K. S. Bellamy, "Analysis of a Non-Trivial Queuing Network," (AFIT/GOA/ENS/99M-02), Faculty Advisor: Murdock & Reid, Sponsor: NSA

INSTITUTE FOR NATIONAL SECURITY STUDIES

Capt J.M. Griffin, "Expeditious Method For Estimating Cleanup Costs At Department of Defense Installations in Korea," (AFIT/GEE/ENV/99M-06), Faculty Advisor: Goltz, Sponsor: INSS

Capt D.H. Hartman, "Expeditious Methods for Site Characterization and Risk Assessment at Department of Defense Hazardous Waste Sites in the Republic of Korea," (AFIT/GEE/ENV/99M-07), Faculty Advisor: Goltz, Sponsor: INSS

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Capt R.H. Broyles, "Performance Analysis of TCP Enhancements in Satellite Data Networks," (AFIT/GCE/ENG/99M-02), Faculty Advisor: Raines, Sponsor: NASA

THE BOEING COMPANY

Capt Thomas L. Miller Jr., "East Coast Abort Modeling with RTLS Elimination for the Space Shuttle-Liquid Fly Back Booster Launch System," (AFIT/GSO/ENY/99M-07), Faculty Advisor: Wiesel, Sponsor: Liquid Fly Back Booster, Boeing Defense Group, Seal Beach, CA

Capt David J. Vloedman, " Anti-ballistic Missile Laser Predictive Avoidance of Satellites: Theory and Software For Real-Time Processing and Deconfliction of Satellites With A Moving Platform Lase," (AFIT/GSO/ENY/99M-09), Faculty Advisor: Wiesel, Sponsor: BMV41 IPT/ABL Program, Boeing Defense and Space Group, Seattle, WA

3.9 FUNDED RESEARCH PROJECTS

[* Denotes duplicate entry, multiple faculty.]

AGNES, Capt GREGORY S. (ENY)

Agnes, "Vibration Suppression of Bladed-Disk Assemblies," ENY, Sponsor: AFOSR

Agnes, "AFIT Space Research," ENY, Sponsor: DoD

Agnes, "Smart Structures for Vibration Suppression of Optical Surfaces," ENY, Sponsor: AFOSR

*Collins, P.J. and G.S. Agnes, "RCS Comparisons of Traditional and Adaptive UAV Wings," ($65,000), ENG, Sponsor: DARPA/DSO

*Terzuoli, A.J., Jr., G. Agnes, and P.J. Collins, "Effects of Aircraft Flex on RCS," Sponsor: DARPA, ASC/EN, and ARFL/SN

BAILEY, Lt Col T. GLENN (ENS)

Bailey, "Dynamic Unmanned Aerial Vehicle (UAV) Routing with a Java-Encoded Reactive Tabu Search Metaheuristic," ENS, Sponsor: UAV Battlelab

Bailey, "Unmanned Aerial Vehicle Mission Level Simulation," ENS, Sponsor: UAV Battlelab

Bailey, "A Java Based Human Computer Interface for a UAV Decision Support Tool Using Conformal Mapping," ENS, Sponsor: UAV Battlelab

Bailey, "C-17 Strategic Brigade Airdrop Simulation and Analysis," ENS, Sponsor: ASC/YC

Bailey, "Solving the Multidimensional Multiple Knapsack Problem with Packing Constraints using Tabu Search," ENS, Sponsor: Air Force Studies and Analyses Agency

BAUER, KENNETH W. (ENS)

Bauer, "The Mathematical Modeling of Mental Workload using Artificial Neural Networks," ENS, Sponsor: AFOSR.

*Bauer and Lanning "Feature Selection in Recurrent Neural Networks (RNN) with Application to Estimating Pilot Workload," ENS, Sponsor: AFOSR

*Miller, Bauer, and Kloeber, "Using Simulation to Model the Army Recruiting Station With Multi-Quality Prospects," ENS, Sponsor: HQ US Army Recruiting Command

*Bauer and Miller, "An Investigation of Possible Solutions to the Technical Barriers facing Performance Estimation for MSTAR," ENS, Sponsor: AFRL/SNA.

BONS, Major Jeffrey P. (ENY)

Bons, "Real Surface Effects on Turbine Heat Transfer and Aerodynamic Performance," ENY, Sponsor: DOE Advanced Gas Turbine Systems Research (AGTSR).

Bons, "Investigation of Turbine Rotor Internal Cooling and Turbine Stator External Aerodynamics," ENY, Sponsor: AFOSR/AFRL.

BROTHERS, Maj CHARLES P., JR. (ENG)

Brothers, C.P., Jr., "Advanced VLSI Research," ($15,000), ENG, Sponsor: AFRL/IFTC.

Brothers, C.P., Jr., "Space Electronics Research," ($2,000), ENG, Sponsor: AFRL/VSSE.

Brothers, C.P., Jr., researcher on Dr. Lamont's program, "Global Information Compression Methodology & Implementation for Enhanced C4ISR System Integration," ENG, Sponsor: DAGSI

BURGGRAF, LARRY W. (ENP)

Burggraf, L.W. and J.B. Martin, "Uranium Dioxide Study", AF Technical Application Center, AFTAC/XBP, (Q12FY98000043, Q12FY99000725): $78K FY 98, $50K FY99.

Burggraf, L.W. and J.B. Martin, "Multiplexed Compton Imaging of Hidden Corrosion" (QWLML977200004), AFRL/ML $75K FY 97, $10.4K FY98.

Burggraf, L.W. "FTIR Characterization" US ARMY ERDC (AF18509867HE501) MIPR 9EDERGM-081: $186K FY 98, $100K FY 99.

*Burggraf, L.W. and Weeks, D., AFOSR (QAF185995203021, AFOSR PO990016), "Theoretical Calculations of Chemistry and Photoluminescence Spectroscopy for Adsorbates on SiC Clusters and Surfaces." $58.5K FY98/99.

Burggraf, L.W., AFOSR (QAF185995203038, AFOSR PO990030) "Multiplexed Compton Scatter Tomography for Non-Destructive Evaluation of Corrosion in Aging Aircraft", $105K FY98/99.

CHAN, YUPO (ENS)

Chan, "Modeling Communication Networks," ENS, Sponsor: National Security Agency

COLLINS, Maj PETER J. (ENG)

*Collins, P.J. and G.S. Agnes, "RCS Comparisons of Traditional and Adaptive UAV Wings," ($65,000), ENG, Sponsor: DARPA/DSO

Collins, P.J., "HPM Susceptibility Models," ($30,000 in '98), ENG, Sponsor: AFRL/DEPA.

*Terzuoli, A.J., Jr., G. Agnes, and P.J. Collins, "Effects of Aircraft Flex on RCS," Sponsor: DARPA, ASC/EN, and ARFL/SN

*Terzuoli, A.J., Jr., P.J. Collins, G.A. Thiele, and G.B. Lamont, "Genetic Antenna Designs for Remote Sensing," Sponsor: AFTAC

*Terzuoli, A.J., Jr., P.J. Collins, and G.A. Thiele, "Bistatic RCS Characterization," Sponsor: ASC/EN and AFRL/SN

DECKRO, RICHARD F. (ENS)

Deckro, "Using Program and Project Management in Joint Campaign Planning," ENS, Sponsor: Air Force Office of Scientific Research

Deckro, "Rapid Approaches to Joint Campaign Planning," ENS, Sponsor: Air Force Office of Scientific Research

*Deckro, Jackson, Kloeber, and Doyle, "A Value Function Approach to Information Operations Measures of Merit," ENS, Sponsor: JC^2WC and USSOCOM

*Kloeber, Jackson, and Deckro, "Designing a CERCLA Based Hierarchy for DNAPL Remediation Technology Selection," ENS, Sponsor: Department of Energy

*Jackson, Kloeber, and Deckro, "A Risk Profile for Remediation Technologies," ENS, Sponsor: Department of Energy

*Deckro, Kloeber, and Jackson, "Technology Selection for the Air Force Research Laboratory," ENS, Sponsor: HQ AFRL

*Deckro and Kloeber, "Modeling Psychological Operations," ENS, Sponsor: AIA/DO2 and JC^2WC

*Deckro and Kloeber, "Modeling Cognitive Information Operations," ENS, Sponsor: JC^2WC, Institute for Information Technology Application, and Institute for National Security Studies

*Kloeber, and Deckro, "Identifying the Top Ten Army Aviation Hazards," ENS, Sponsor: Army Safety Center, Ft. Rucker, AL

*Kloeber and Deckro, "Analyzing QFD for Use by ACC Modernization Planning Process," ENS, Sponsor: ACC/XP

DELOACH, Maj SCOTT A. (ENG)

DeLoach, S.A., "Agent Development Environments for Large-Scale Multi-Agent, Distributed Mission Planning and Execution in Complex Dynamic Environments," ENG, Sponsor: AFOSR/NM.

*DeLoach, S.A. and T.C. Hartrum, "Collaborative Information Systems and Adaptive Workflow," ENG, Sponsor: Ohio Board of Regents and Dayton Area Graduate Studies Institute (DAGSI).

*DeLoach, S.A., T.C. Hartrum, and R.P. Graham, "Formal Specification and Design of Secure Agents," ENG, Sponsor: AFOSR/NM.

*Talbert, M.L., T.C. Hartrum, and S.A. DeLoach, "An Agent-Based Methodology for Integrating Heterogeneous Resources," ENG, Sponsor: AFRL/SNA.

FRANKE, MILTON E. (ENY)

Franke, M. E., "Wind Tunnel Test Support," ENY, Sponsor: Air Force Research Laboratory, AFRL/MNMF.

Franke, M. E., (with King, P. as PI), "Heat Exchanger Research," ENY, AFOSR/NE.

GALLAGHER, Lt Col MARK A. (ENS)

Gallagher, "Combinatory Optimization for Strategic Nuclear War Planning," ENS, Sponsor: AFOSR, USSTRATCOM

GOLTZ, MARK N. (ENV)

Goltz, "Bioenhanced In-well Vapor Stripping to Treat Trichloroethylene," ENV, Sponsor: DoD/DOE/EPA SERDP

Goltz, "Hazardous Waste Contamination at DoD Sites in Korea: Expeditious Methods for Estimating Risk and Clean-up Costs" ENV, Sponsor: USAF INSS

Goltz, and Huang, "Hazardous Waste Site Characterization Simulator" ENV, Sponsor: DoD ERA

Goltz, "*In Situ* Catalytic Groundwater Treatment Using Pd-Catalysts and Horizontal Flow Treatment Wells," ENV, Sponsor: DoD ESTCP

Shelley and Goltz, "Abiotic and Biochemical Fate and Transport or Contaminants," ENV, Sponsor: AFRL/ML, DAGSI

GRAHAM, Maj, ROBERT P. (ENG)

*DeLoach, S.A., T.C. Hartrum, and R.P. Graham, "Formal Specification and Design of Secure Agents," ENG, Sponsor: AFOSR/NM.

GUSTAFSON, STEVEN C. (ENG)

Gustafson, S.C., "Optical Characterization of Material Surface Damage," ENG, Sponsor AFOSR grant 1999.

HARTRUM, THOMAS C. (ENG)

*DeLoach, S.A. and T.C. Hartrum, "Collaborative Information Systems and Adaptive Workflow," ENG, Sponsor: Ohio Board of Regents and Dayton Area Graduate Studies Institute (DAGSI).

*DeLoach, S.A., T.C. Hartrum, and R.P. Graham, "Formal Specification and Design of Secure Agents," ENG, Sponsor: AFOSR/NM.

*Talbert, M.L., T.C. Hartrum, and S.A. DeLoach, "An Agent-Based Methodology for Integrating Heterogeneous Resources," ENG, Sponsor: AFRL/SNA.

HENGEHOLD, ROBERT L. (ENP)

Yeo, Y.K. and Hengehold, R.L., "Development of Optically Assisted Deep Level Transient Spectroscopy for SiO_2 and Wide Band Gap Material Characterization," ENP, Sponsor: Defense Threat Reduction Agency

Yeo, Y.K. and Hengehold, R.L., "Ion Implantation and Metallic Contact Studies for Application to AlGaN Optoelectronic Devices," ENP, Sponsor: AFOSR/NE

Yeo, Y.K. and Hengehold, R.L., "Defect Studies in Group III-Nitrides for Optoelectronic Device Perspectives," ENP, Sponsor: AFOSR/NE

HILL, Lt Col RAYMOND R. (ENS)

Hill, "Evaluation and Analysis of Expeditionary Force Experiment (EFX) 98 Assessment Experiences and EFX 98 Assessment Evaluation," ENS, Sponsor: EFX SPO.

Hill, "A Bayesian Decision Model for Battle Damage Assessment," ENS, Sponsor: Command and Control Battlelab.

Hill, "Pilot Inventory Complex Adaptive System (PICAS): An Artificial Life Approach to Managing Pilot Retention," ENS, Sponsor: Institute for National Security Studies (INSS) and AF Personnel Operations Agency

Hill, "Reduction of the Aircraft Ground Equipment Footprint of an Aerospace Expeditionary Force (AEF)," ENS, Sponsor: AEF Battlelab.

Hill, "Strategic Effects of Airpower and Complex Adaptive Agents: An Initial Investigation," ENS, Sponsor: INSS and AF Studies and Analyses Agency

*Hill and McIntyre, "Strategic Effects," ENS, Sponsor: HQ USAF/XOC

JACOBS, Maj TIMOTHY M., (ENG)

Jacobs, "Strategic Brigade Airdrop Simulation and Analysis," ENG, Sponsor: ASC/TC

KLOEBER, LTC JACK M., Jr. (ENS)

*Deckro, Kloeber, and Jackson, "Technology Selection for the Air Force Research Laboratory," ENS, Sponsor: HQ AFRL

*Deckro and Kloeber, "Modeling Psychological Operations," ENS, Sponsor: AIA/DO2 and JC^2WC

*Deckro and Kloeber, "Modeling Cognitive Information Operations," ENS, Sponsor: JC^2WC, Institute for Information Technology Application, and Institute for National Security Studies

*Deckro, Kloeber, and Jackson, "Technology Selection for the Air Force Research Laboratory," ENS, Sponsor: HQ AFRL.

*Deckro, Jackson, Kloeber, and Doyle, "A Value Function Approach to Information Operations Measures of Merit," ENS, Sponsor: JC^2WC and USSOCOM

*Kloeber, Jackson, and Deckro, "Designing a CERCLA Based Hierarchy for DNAPL Remediation Technology Selection," ENS, Sponsor: Department of Energy

*Kloeber and Deckro, "Identifying the Top Ten Army Aviation Hazards," ENS, Sponsor: Army Safety Center, Ft. Rucker, AL

*Kloeber and McIntyre, "Precision Airdrop," ENS, Sponsor: AF Mobility Battlelab and Army Dismounted Battlelab

*Kloeber and Moore: "Data Envelopment Analysis and Recruiting Resource Allocation and Evaluation ," ENS, Sponsor: US Army Recruiting Command

*Kloeber and Deckro, "Analyzing QFD for Use by ACC Modernization Planning Process," ENS, Sponsor: ACC/XP

KLOEBER, LTC JACK M., Jr. (ENS) (continued)

*Miller, Bauer, and Kloeber, "Using Simulation to Model the Army Recruiting Station with Multi-Quality Prospects," ENS, Sponsor: HQ US Army Recruiting Command

LAMONT, GARY B. (ENG)

Lamont, G.B., "Global Information Compression for C4ISR," ($104,939), ENG, Sponsor: AFRL/DAGSI

Lamont, G.B., "Digital Signal and Image Processing," ($45,000), ENG, Sponsor: AFRL/RL/OC-HPC/CHSSI

*Terzuoli, A.J., Jr., P.J. Collins, G.A. Thiele, and G.B. Lamont, "Genetic Antenna Designs for Remote Sensing," Sponsor: AFTAC

LANNING, Maj JEFFREY W. (ENS)

*Lanning and McIntyre, "Validation of the Space Information Distributed Architecture (SPIDAR) Model," ENS, Sponsor: Space Warfare Center (SWC/AEA)

*Bauer and Lanning "Feature Selection in Recurrent Neural Networks (RNN) with Application to Estimating Pilot Workload," ENS, Sponsor: AFOSR

LIEBST, BRADLEY S. (ENY)

*Spenny, C.H. and Liebst, B.S. , "Model of a Sustained-G Dynamic Flight Simulator- Version Delta," Sponsor: Environmental Tectonics Corporation, Southampton, PA.

LOTT, Maj JAMES A. (ENG)

Lott, J.A., "Microcavity Lasers," ENG, Sponsor: AFOSR

MAGEE, Maj ERIC P. (ENG)

Magee, E.P., "Signal Modeling and Mean Frequency Estimation for Incoherent Scatter Bistatic Doppler Lidar," ($10,168), ENG, Sponsor: AFOSR

MAYBECK, P.S. (ENG)

*Pachter, M., P.S. Maybeck, M.M. Miller, J.F. Raquet, "GPS Navigation," ($15,000), ENG, Sponsor: CIGTF

McINTYRE, Lt Col GREGORY A. (ENS)

*Hill and McIntyre, "Strategic Effects," ENS, Sponsor: HQ USAF/XOC

*Lanning and McIntyre, "Validation of the Space Information Distributed Architecture (SPIDAR) Model," ENS, Sponsor: Space Warfare Center (SWC/AEA)

McIntyre, "Air-to-Air Combat Modeling Validation," ENS, Sponsor: HQ USAF/XOC

*Kloeber and McIntyre, "Precision Airdrop," ENS, Sponsor: AF Mobility Battlelab and Army Dismounted Battlelab

McINTYRE, Lt Col GREGORY A. (ENS) (continued)

McIntyre, "Using Goal Lattices for Sensor Management," ENS, Sponsor: AFOSR

MILLER, Lt Col JOHN O. (ENS)

*Miller, Bauer, and Kloeber, "Using Simulation to Model the Army Recruiting Station with Multi-Quality Prospects," ENS, Sponsor: HQ US Army Recruiting Command

*Miller and Murdock, "AMRAAM Fleet Life Cycle Simulation," ENS, Sponsor: AMRAAM JSPO, ASC/YAF

*Bauer and Miller, "An Investigation of Possible Solutions to the Technical Barriers facing Performance Estimation for MSTAR," ENS, Sponsor: AFRL/SNA.

MILLER, Lt Col MIKEL M. (ENG)

Miller, M.M., "RAVEN Test Bed Development," ($10,000), ENG, Sponsor: 746th Test Squadron.

*Pachter, M., P.S. Maybeck, M.M. Miller, J.F. Raquet, "GPS Navigation," ($15,000), ENG, Sponsor: CIGTF

MOORE, JAMES T. (ENS)

*Kloeber and Moore: "Data Envelopment Analysis and Recruiting Resource Allocation and Evaluation ," ENS, Sponsor: US Army Recruiting Command

MURDOCK, Maj W. PAUL (ENS)

Murdock, "AMRAAM Pin Failure Data Analysis," ENS, Sponsor: AMRAAM JSPO, ASC/YAA

*Miller and Murdock, "AMRAAM Fleet Life Cycle Simulation," ENS, Sponsor: AMRAAM JSPO, ASC/YAF

OXLEY, MARK E. (ENC)

Oxley, M. E., "A Reductionist Approach to Process Discovery," ENC, Sponsor: AFOSR

PACHTER, M. (ENG)

Pachter, M., "Satellite Formation Control," ($21,000), ENG, Sponsor: AFOSR

Pachter, M., "Adaptive & Nonlinear Control," ($5,100), ENG, Sponsor: AFOSR

Pachter, M., "Adaptive Optics," ($30,000), ENG, Sponsor: PL/LIA

*Pachter, M., P.S. Maybeck, M.M. Miller, J.F. Raquet, "GPS Navigation," ($15,000), ENG, Sponsor: CIGTF

QUINN, DENNIS W. (ENC)

Quinn, D. W., "The fate and transport of airborne JP-8 during cold startup," ENC, Sponsor: AFOSR

RAINES, Maj RICHARD A. (ENG)

*Raines, R.A. and M.A. Temple, "Technical Support, AF Communication Systems Modeling," Sponsor: AFCA/ITAI

RAQUET, Capt JOHN F. (ENG)

Raquet, J.F., "GPS Jamming Detection," ($20,000), ENG, Sponsor: CIGTF

Raquet, J.F., "Determination of the Direction of Incoming GPS Signals Using Multiple GPS Receivers," ($20,324), ENG, Sponsor: AFOSR

*Pachter, M., P.S. Maybeck, M.M. Miller, J.F. Raquet, "GPS Navigation," ($15,000), ENG, Sponsor: CIGTF

SHELLEY, MICHAEL L. (ENV)

Shelley and Goltz, "Abiotic and Biochemical Fate and Transport or Contaminants," ENV, Sponsor: AFRL/ML, DAGSI

SPENNY, CURTIS H. (ENY)

*Spenny, C.H. and Liebst, B.S. , "Model of a Sustained-G Dynamic Flight Simulator- Version Delta," Sponsor: Environmental Tectonics Corporation, Southampton, PA.

TALBERT, Maj MICHAEL L. (ENG)

Talbert, M.L., Object Store Object Oriented DBMS license maintenance ($4,150), ENG, Sponsor: AFRL/SNZW

Talbert, M.L., T.C. Hartrum, and S.A. DeLoach, "An Agent-Based Methodology for Integrating Heterogeneous Resources," ENG, Sponsor: AFRL/SNA.

Talbert, M.L., "Intelligent Profile-Based Access to Remote Target Databases and Metadata Holdings," ($24,000), ENG, Sponsor: AFRL/SNAS.

Talbert, M.L., "Research Impact Statement Database System," ($2,500), ENG, Sponsor: AFIT/ENR

TEMPLE, Maj MICHAEL A. (ENG)

*Raines, R.A. and M.A. Temple, "Technical Support, AF Communication Systems Modeling," Sponsor: AFCA/ITAI

TERZUOLI, ANDREW J., JR. (ENG)

*Terzuoli, A.J., Jr., G. Agnes, and P.J. Collins, "Effects of Aircraft Flex on RCS," Sponsor: DARPA, ASC/EN, and ARFL/SN

*Terzuoli, A.J., Jr., P.J. Collins, G.A. Thiele, and G.B. Lamont, "Genetic Antenna Designs for Remote Sensing," Sponsor: AFTAC

*Terzuoli, A.J., Jr., P.J. Collins, and G.A. Thiele, "Bistatic RCS Characterization," Sponsor: ASC/EN and AFRL/SN

WEEKS, DAVID E. (ENP)

D.E.Weeks, "Nonadiabatic Molecular Reaction Dynamics," AFOSR, $91,910, 1999.

*L.W. Burggraf and D.E.Weeks, "Theoretical Calculations of Chemistry and Photoluminescence Spectroscopy for Adsorbates on SiC Clusters and Surfaces," AFOSR, $58,330, 1999.

WOOD, AIHUA W. (ENC)

Wood, A. W., "Scattering and propagation of electromagnetic waves," ENC, Sponsor: AFOSR.

YEO, YUNG KEE (ENP)

Yeo, Y.K. and Hengehold, R.L., "Development of Optically Assisted Deep Level Transient Spectroscopy for SiO_2 and Wide Band Gap Material Characterization," ENP, Sponsor: Defense Threat Reduction Agency

Yeo, Y.K., "Electrical Characterization of $Si_{1-x-y}Ge_xC_y$/Si Heterostructures," ENP, Sponsor: DARPA/ETO

Yeo, Y.K. and Hengehold, R.L., "Ion Implantation and Metallic Contact Studies for Application to AlGaN Optoelectronic Devices," ENP, Sponsor: AFOSR/NE

Yeo, Y.K. and Hengehold, R.L., "Defect Studies in Group III-Nitrides for Optoelectronic Device Perspectives," ENP, Sponsor: AFOSR/NE

3.10 REFEREED JOURNAL PUBLICATIONS

[* Denotes duplicate entry, multiple faculty authors.]

BAILEY, Lt Col T. GLENN (ENS)

Bailey, T.G., P.A. Jensen, and D.P. Morton, "Response Surface Analysis of Two-Stage Stochastic Linear Programming with Recourse," Naval Research Logistics, Vol. 46, No. 7, pp. 753-776, 1999.

Grier, J.B., T.G. Bailey and J.A. Jackson, "Response Surface Modeling of Campaign Objectives Using Factor Analysis, "Military Operations Research, Vol. 4, No. 2, 1999.

*Ryan, J.L., T.G. Bailey, J.T. Moore and W.B. Carlton, "Unmanned Aerial Vehicle (UAV) Route Selection Using Reactive Tabu Search," Military Operations Research, Vol. 4, No. 3, 1999, p. 5-24.

BAUER, KENNETH W. (ENS)

Bauer, K.W., G.S. Parnell and D.A. Meyers, "Response Surface Methodology as a Sensitivity Analysis Tool in Decision Analysis," Journal of Multicriteria Decision Analysis, Vol 8, No 3, pp. 162-180, May 1999.

Belue, L. M. and K.W. Bauer, "Designing Experiments for Single Output Multilayer Perceptrons", Journal of Statistical Computation and Simulation, Vol 64, pp. 301-325.

Catlin, A.E., K.W. Bauer, E.F. Mykytka and D.C. Montgomery, "System Comparison Procedures for Automatic Target Recognition Systems," Naval Research Logistics, Vol 46, No 4, pp. 357-371, June 1999.

Richardson, B.D., K.W. Bauer, D.J. Louis and J.A. Jackson, "Adapting Statistical Process Control to Incorporate Demerit Systems as a Surveillance Tool for Hepatic Dysfunction", Military Operation Research, Vol 4, No 4, 1999.

BLECKMANN, CHARLES A. (ENV)

*Meshako, C.E., C.A. Bleckmann, and M.N. Goltz, "Biodegradability and Microbial Toxicity of Aircraft Fuel System Icing Inhibitors," Environmental Toxicology and Water Quality. 14:383-390, 1999.

BROTHERS, Maj CHARLES P., JR. (ENG)

Karna, S.P., R.D. Pugh, J.R. Chavez, W. Shedd, C.P. Brothers, B.K. Singaraju, M. Vitiello, G. Pacchioni, and R.A.B. Devine, "Microscopic Mechanisms of Radiation-Induced Proton Density Decay in SiO_2 Films," IEEE Transactions on Nuclear Science, Vol. 45, NO. 6, December 1998.

BURGGRAF, LARRY W. (ENP)

Shoemaker, J.R., L.W. Burggraf and M.S. Gordon, "An Integrated Molecular Orbital/Molecular Mechanics Optimization Scheme For Surfaces," SIMOMM, J. Phys. Chem. A, 103, 3245 (1999).

CHAN, YUPO (ENS)

Lyle, D., Y. Chan and E. Head, "Improving Information Network Performance: Reliability vs. Invulnerability," Transaction of the Institute of Industrial Engineers, Vol. 31, Issue 9, August 1999, pp. 909-919.

*Ottoman, G., B. Nixon and Y. Chan, "Budgeting for Facility Maintenance and Repair II: A Multi-Criteria Process," ASCE Journal of Management in Engineering 15(4): 84-95, 1999.

DECKRO, RICHARD F. (ENS)

Davis, C.C., R.F. Deckro and J.A. Jackson, "A Methodology for Evaluating and Enhancing C4 Networks," Military Operations Research, Vol. 4, No.2, pp. 45 - 60.

Haertling, K.P., R.F. Deckro and J.A. Jackson, "Implementing Information Warfare in the Weapon Targeting Process," Military Operations Research, Vol. 4, No.1, pp. 51- 65.

*Jackson, J.A., J.M. Kloeber, B.E. Ralston and R.F. Deckro, "Selecting a Portfolio of Technologies: An Application of Decision Analysis," Decision Sciences, Vol. 30, No. 1, pp. 217-238.

Zorn, W.L., R.F. Deckro and L.J. Lehmkuhl, "Modeling Diminishing Marginal Returns in a Hierarchical Inventory System of Reparable Spare Parts," Annals of Operations Research, Vol. 91, 1999, pp. 319 - 337.

GOLTZ, MARK N. (ENV)

Christ, J.A., M.N. Goltz, and J. Huang, "Development and Application of an Analytical Model to Aid Design and Implementation of *In Situ* Remediation Technologies," Journal of Contaminant Hydrology, 37:295-317, 1999.

Cunningham, J.A., M.N. Goltz, and P.V. Roberts, "Simplified Expressions for Spatial Moments of Ground-Water Contaminant Plumes," Journal of Hydrologic Engineering, 4(4):377-380, 1999.

Huang, J. and M.N. Goltz, "Solutions to Equations Incorporating the Effect of Rate-limited Contaminant Mass Transfer on Vadose Zone Remediation by Soil Vapor Extraction," Water Resources Research, 35(3):879-883, 1999.

*Meshako, C.E., C.A. Bleckmann, and M.N. Goltz, "Biodegradability and Microbial Toxicity of Aircraft Fuel System Icing Inhibitors," Environmental Toxicology and Water Quality, 14:383-390, 1999.

GUNSCH, GREGG H. (ENG)

*Fossa, C.E., R.A. Raines, G.H. Gunsch, and M.A. Temple, "A Performance Analysis of the Iridium Low Earth Orbit Satellite System With a Degraded Satellite Constellation," ACM Mobile Computing and Communications Review, Vol. 2, No. 4, pp. 54-61, October 1998.

HARITOS, GEORGE K. (ENY)

D.B. Lanning, G. K. Haritos and T. Nicholas, "Notch Size Effects in HCF Behavior of Ti-6Al-4V," International Journal of Fatigue, Vol. 21, pp. 643-652, August, 1999.

HENGEHOLD, ROBERT L. (ENP)

*Scott, M.B., Y.K. Yeo, R.L. Hengehold, and J.D. Scofield, "High Temperature (500 °C) Implantation Study of P^+ and N^+ Implanted Epitaxial N-Type 4H-SiC," Compound Semiconductors 1998, Inst. Phys. Conf. Ser. No. **162**, (Institute of Physics, Bristol and Philadelphia, (1999), pp. 763-768,

Van Nostrand, J.E., R.L. Hengehold, K.D. Leedy, J.T. Grant, J.L. Brown, and Q.H. Xie, "Cathodoluminescence, Microstructure, and Morphology of Tensile-Strained AlxGa(1-x)N Epitaxial Films Grown by Gas Source Molecular Beam Epitaxy," J. Appl. Phys. 86, 3120-3128, 1999

KLOEBER, LTC JACK M., Jr. (ENS)

*Jackson, J.A., J.M. Kloeber, B. Ralston and R.F. Deckro, "Selecting a Portfolio of Technologies: An Application of Decision Analysis," Decision Sciences, Vol. 30, No. 1, pp. 217-238.

Toland, R., J.M. Kloeber, and J.A. Jackson, "A Comparative Analysis of Hazardous Waste Remediation Alternatives," Interfaces, Vol. 28, No. 5, Sep-Oct 1998.

LAIR, ALAN V. (ENC)

*Lair, A.V. and A.W. Wood, ``Large Solutions of Semilinear Elliptic Problems," Nonlinear Analysis, 37 (6), pp. 805-812, 1999.

LIEBST, BRADLEY S. (ENY)

Liebst, B.S., "The Dynamics, Prediction, and Control of Wing Rock in High-Performance Aircraft", Philosophical Transactions of the Royal Society, London, No. 356, 1998, pp. 2257-2267.

LOTT, Maj JAMES A. (ENG)

Noble, M.J., J.A. Lott, and J.P. Loehr, "Quasi-Exact Optical Analysis of Oxide-Apertured Microcavity VCSELs Using Vector Finite Elements," IEEE Journal of Quantum Electronics, 34(12), pp. 2327-2339, *December 1998.*

Noble, M.J., J.P. Loehr, and J.A. Lott, "Analysis of Microcavity VCSEL Lasing Modes Using a Full Vector Weighted Index Method," IEEE Journal of Quantum Electronics, 34(10), pp. 1890-1903, October 1998.

MALL, SHANKAR (ENY)

Calcaterra, J.R., S. Mall and A. Ruiz, "Residual Strength Degradation of Cross Ply Titanium Matrix Composite due to Elevated Temperature Fatigue", Journal of Composite Technology and Research, Vol. 21, No.1, 16-24, 1999.

Calcaterra, J.R. and S. Mall, "Strength Degradation During Fatigue of Unidirectional and Cross Ply SCS-6/Ti-15-3 Composites", International Journal of Fatigue, Vol. 21, No. 3, 215-223, 1999.

Calcaterra, J.R., S. Mall and S.C. Coghlan, "Degradation of Residual Strength in SCS-6/Ti-15-3 Due to Fully Reversed Fatigue", Metallurgical and Materials Trans. A, Vol. 30A, 307-313, 1999.

Cortez, R., S. Mall and J.R. Calcaterra, "Investigation of Variable Amplitude Loading on Fretting Fatigue Behavior of Ti-6AL-4V," International Journal of Fatigue, Vol. 21, 709-717, 1999.

MALL, SHANKAR (ENY) (continued)

Mall, S. and J.P. Coleman, "Monotonic and Fatigue Loading Behavior of Quasi-Isotropic Graphite/Epoxy Laminate Embedded with Piezoelectric Sensor", Smart Materials and Structures, Vol. 7, 822-832, 1998.

Sanders, B.P., S. Mall and R.N. Pittman, "The Effects of Frequency and Temperature on Fatigue Behavior of a Unidirectional Metal Matrix Composite", Composites Science and Technology, Vol. 59, pp. 583-591, 1999.

Sanders, B. P., S. Mall and S.C. Jackson, "Load Ratio Effects on Fatigue Response of Titanium Matrix Composite at Elevated Temperature," International Journal of Fatigue, Vol. 21, 121-134, 1999.

Schubbe, J.J. and S. Mall, "Investigation of Cracked thick Aluminum Panel Repaired with Bonded Composite Patch", Engineering Fracture Mechanics, Vol. 63, No. 4, 305-323,1999.

Schubbe, J.J. and S. Mall, " Modeling of Cracked Thick Metallic Structure with Bonded Composite Repair using Three-Layer Technique", Composite Structures, Vol. 45, 185-193, 1999.

MATHEWS, KIRK A. (ENP)

Mathews, K.A., "On the Propagation of Rays in Discrete Ordinates," Nuclear Science and Engineering 132, 155-180 (1999).

MAYBECK, PETER S. (ENG)

Kyger, D.W. and P.S. Maybeck, "Reducing Lag in Virtual Displays Using Multiple Model Adaptive Estimation," IEEE Transactions on Aerospace and Electronic Systems, Vol. 34, No. 4, pp. 1237-1248, October 1998.

Stepaniak, M.J. and P.S. Maybeck, "MMAE-Based Control Redistribution Applied to the VISTA F-16," IEEE Transactions on Aerospace and Electronic Systems, Vol. 34, No. 4, pp. 1249-1260, October 1998.

White, N.A., P.S. Maybeck, and S.L. DeVilbiss, "Detection of Interference/Jamming and Spoofing in a DGPS-Aided Inertial System," IEEE Transactions on Aerospace and Electronic Systems, Vol. 34, No. 4, pp. 1208-1217, October 1998.

MOORE, JAMES T. (ENS)

*Ryan, J.L., T.G. Bailey, J.T. Moore and W.B. Carlton, "Unmanned Aerial Vehicle (UAV) Route Selection Using Reactive Tabu Search," Military Operations Research, Vol. 4, No. 3, 1999, pp. 5-24.

MURDOCK, Maj W. PAUL (ENS)

Reineke, D.M., W.P. Murdock, E.A. Pohl and I. Rehmert, "Improving Availability and Cost Performance for Complex Systems with Preventive Maintenance," IEEE Proceedings of the 1999 International Reliability and Maintainability Symposium, Washington, DC, pp. 383-388, January 1999.

Tran, T.H., W.P. Murdock and E.A. Pohl, "Bayesian Analysis for System Reliability Inferences," IEEE Proceedings of the 1999 International Reliability and Maintainability Symposium, Washington, DC, pp. 151-157, January 1999.

NIXON, Lt Col WM. BRENT (ENV)

Ottoman, G.R., W.B. Nixon, and S.T. Lofgren. "Budgeting for Facility Maintenance and Repair. I: Methods and Models." ASCE Journal of Management in Engineering 15(4): 71-83, 1999.

Ottoman, G.R., W.B. Nixon, and Y. Chan. "Budgeting for Facility Maintenance and Repair. II: Multi-Criteria Process for Model Selection." ASCE Journal of Management in Engineering 15(4): 84-95, 1999.

OXLEY, MARK E. (ENC)

Broussard, R.P., S.K. Rogers, M.E. Oxley, and G.L. Tarr, "Physiologically Motivated Image Fusion for Object Detection using a Pulse Coupled Neural Network," IEEE Transactions on Neural Networks, 10 (3), pp. 554-563, 1999.

Carter, M.A. and M.E. Oxley, "Evaluating the Vapnik-Chervonenkis Dimension of a set of Artificial Neural Networks using the Poincare Polynomial," Journal of Neural Networks, 12 (3), pp. 403-408, April 1999.

PACHTER, M. (ENG)

Buffington, J., P. Chandler, and M. Pachter, "On-Line System Identification for Aircraft with Distributed Control Effectors," International Journal of Robust and Nonlinear Control, Vol. 9, pp 1033-1049, 1999.

Pachter, M. and O. Reynolds, "Phasor Approach to Continuous-Time System Identification," IEEE Transactions on Aerospace and Electronic Systems, Vol. 35, No. 2, pp. 683-699, 1999.

PERRAM, Lt Col GLEN P. (ENP)

Stager, M.P. and G.P. Perram, "Long-Term Desorption of Trichloroethylene from Powdered Soils Using Multiplexed Optical Detection", Environmental Pollution, 104, 397 (1999).

Franklin, Robert E. and Glen P. Perram, "Laser Excitation Spectra and Franck-Condon Factors for Bi_2 X^1 $\Sigma_g^+ \rightarrow A(0_u^+)$", J Molecular Spectroscopy, 194, 1, (1999).

RAINES, Maj RICHARD A. (ENG)

Crowe, K.E. and R.A. Raines, "A Model to Describe the Distribution of Transmission Path Elevation Angles to the Iridium and Globalstar Satellite Systems," IEEE Communications Letters, Vol. 3, No. 8, pp. 242-244, August 1999.

*Fossa, C.E., R.A. Raines, G.H. Gunsch, and M.A. Temple, "A Performance Analysis of the Iridium Low Earth Orbit Satellite System With a Degraded Satellite Constellation," ACM Mobile Computing and Communications Review, Vol. 2, No. 4, pp. 54-61, October 1998.

Pratt, S.R., R.A. Raines, C.E. Fossa, and M.A. Temple, "An Operational and Performance Overview of the Iridium Low Earth Orbit (LEO) Satellite System," IEEE Communications Surveys, http://www/comsoc.org/pubs/surveys/, pp. 1-15, 2nd Quarter, 1999.

Raines, R.A. and N.J. Davis IV, "The Simulation Modeling and Performance Analysis of Low Earth Orbit Satellite Communication Networks for Personal Communications," International Journal on Communication Systems, Vol 12, pp. 197-215, 1999.

ROH, WON B. (ENP)

Rodgers, B.C., T.H. Russell, and W.B. Roh, "Laser Beam Combining and Cleanup via Stimulated Brillouin Scattering in a Multi-mode Optical Fiber," Optics Letters 24, pp. 1124-1126, 1999.

SHELLEY, MICHAEL L. (ENV)

Brennan, M. and M. Shelley, "A Model of the Uptake, Translocation, and Accumulation of Lead (Pb) by Maize for the Purpose of Phytoextraction," Ecological Engineering, 12, pp. 271-297, 1999.

Shelley, M. and L. Mudgett, "A Mechanistic Simulation Model of a Constructed Wetland Designed to Remove Organic Matter From Stormwater Runoff," J. Environmental Systems, 27(1), pp. 33-54, 1999.

Wood, T. and M. Shelley, "A Dynamic Model of Bioavailability of Metals in Constructed Wetland Sediments," Ecological Engineering, 12, pp. 231-252, 1999.

SPENNY, CURTIS H. (ENY)

Spenny, C.H., D.L. Schneider and T.E. Deeter, " Telerobotics," Wiley Encyclopedia of Electrical and Electronic Engineering, John Webster, ed., John Wiley and Sons, New York, NY, Vol. 21, pp 525-541, 1999.

TEMPLE, Maj MICHAEL A. (ENG)

*Fossa, C.E., R.A. Raines, G.H. Gunsch, and M.A. Temple, "A Performance Analysis of the Iridium Low Earth Orbit Satellite System With a Degraded Satellite Constellation," ACM Mobile Computing and Communications Review, Vol. 2, No. 4, pp. 54-61, October 1998.

*Pratt, S.R., R.A. Raines, C.E. Fossa, and M.A. Temple, "An Operational and Performance Overview of the Iridium Low Earth Orbit (LEO) Satellite System," IEEE Communications Surveys, http://www/comsoc.org/pubs/surveys/, pp. 1-15, 2nd Quarter, 1999.

TURCOTTE, Lt Col JEFFREY S. (ENY)

Turcotte, J.S., J.J. Hollkamp, and R.W. Gordon, "Vibration of a Mistuned Bladed-Disk Assembly Using Structurally Damped Beams," AIAA Journal, Vol. 36 (1998), pp. 2225-2228.

WALTERS, Lt Col MICHAEL K. (ENP)

Eckel, F. Anthony and M.K. Walters, "Calibrated Probabilistic Quantitative Precipitation Forecasts Based on the MRF Ensemble," Weather and Forecasting: Vol. 13, No. 4, pp. 1132–1147, 1998.

WEEKS, DAVID E. (ENP)

Niday, T.A. and D.E. Weeks, "Scattering Matrix Elements for the Fine Structure Transition $B(^2P_{1/2}) + H_2(j) \leftrightarrow B(^2P_{3/2}) + H_2(j)$," Chem. Phys. Letters **308** (1999) 106-114.

WOOD, AIHUA W. (ENC)

*Lair, A.V. and A.W. Wood, ``Large Solutions of Semilinear Elliptic Problems," <u>Nonlinear Analysis</u>, 37 (6), pp. 805-812, 1999.

Wood, A.W. and W.D. Wood, ``Integral Equation Methods for Electromagnetic Scattering from Cavities," <u>Journal of Dynamics of Continuous, Discrete and Impulsive Systems</u>, 5, pp. 473-483, 1999.

Wood, W.D. and A.W. Wood, ``Development and Numerical Solution of Integral Equations for 2-D Electromagnetic Scattering from a Trough in a Ground Plane," <u>IEEE Transactions on Antennas and Propagation</u>, 47 (8), pp. 1318-1322, 1999.

YEO, YUNG KEE (ENP)

*Scott, M.B., Y.K. Yeo, R.L. Hengehold and J.D. Scofield, "High Temperature (500 $^{\circ}$C) Implantation Study of P^+ and N^+ Implanted Epitaxial N-Type 4H-SiC," <u>Compound Semiconductors 1998</u>, Inst. Phys. Conf. Ser. No. 162, (Institute of Physics, Bristol and Philadelphia, 1999), pp. 763-768.

3.11 OTHER PUBLICATIONS

[*Denotes duplicate entry, multiple faculty authors.]

AGNES, Capt GREGORY S. (ENY)

Agnes, G.S., "Piezoelectric Coupling of Bladed-Disk Assemblies," Smart Structures and Materials 1999: Passive Damping and Isolation, ed. T.T. Hyde, Newport Beach, CA, pp. 94-103.

Karahalis, G. and G.S. Agnes, "Preliminary Analysis of Hybrid Launch Isolation for Spacecraft", Smart Structures and Materials 1999: Industrial and Commercial Applications of Smart Structures Technologies, ed. J.H. Jacobs, Newport Beach, CA, pp. 360-70.

Cox, A. and G.S. Agnes, "A Statistical Analysis of Space Structure Mode Localization," Proceedings of the 40th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, St. Louis, MO, AIAA-99-1613.

*Colebank, J.E., R.D. Jones, G.R. Nagy, R.D. Pollak, D.R. Mannebach, S.C. Kramer, and G.S. Agnes, "SIMSAT: A Satellite Simulator and Experimental Test Bed for Air Force Research," Proceedings of the AIAA 1999 Space Conference and Exposition, Albuquerque, NM, AIAA-99-4428.

ANDREW, Col JOHN M. (ENS)

*Roland, R.J., M. Macedonia, J. Metzger, J. Andrew and J.O. Miller, "Panel: The Future of Military Simulation," Proceedings of the 1998 Winter Simulation Conference, ed. D. J. Medeiros, E. F. Watson, J. S. Carson, and M. S. Manivannan, Washington, DC, pp. 813-817.

BAILEY, Lt Col T. GLENN (ENS)

*Ryan, J. L., T.G. Bailey, J.T. Moore and W.B. Carlton, "Reactive Tabu Search in Unmanned Aerial Reconnaissance Simulations," Proceedings of the 1998 Winter Simulation Conference, ed. D. J. Medeiros, E. F. Watson, J. S. Carson, and M. S. Manivannan, Washington, DC.

BAUER, KENNETH W. (ENS)

Alsing, S.G., K.W. Bauer and E.P. Blasch, "Three-Dimensional (3-D) Receiver Operating Characteristic (ROC) Concepts for the Evaluation of Target Recognition Algorithms Faced with the Unknown Target Detection Problem," Proceedings of Automatic Target Recognition IX, Orlando, FL, 7-9 April 1999.

Blasch, E.P., S.G. Alsing, and K.W. Bauer, "Comparison of Bootstrap and Prior-Probability Synthetic Data Balancing Methods for SAR Target Recognition," Proceedings of Algorithms for Synthetic Aperture Radar Imagery VI, Orlando, FL, 5-9 April 1999.

BONS, Maj JEFFREY P. (ENY)

Bons, J.P. "Comparison of Computational Velocity and Heat Transfer Predictions to Experimental Measurements in a Rotating Cooling Passage with Smooth Walls." Published as pamphlet from 1999 International Gas Turbine Institute (IGTI) Conference in Indianapolis, IN, paper #99-GT-264.

CHRISSIS, JAMES W. (ENS)

Payne, M. D, J.W. Chrissis, E.A. Pohl, R.D. Bowersox,, M.R. Gruber and R.F. Fuller, "Optimizing Scramjet Fuel Injection Array Design," 35th Joint Propulsion Conference, Los Angeles, CA, 20-23 June 1999.

COLLINS, Maj PETER J. (ENG)

Collins, P.J. and J.P. Skinner, "A Hybrid Periodic Moment Method Formulation for Scattering from Large 2-D Wire Arrays," Proceedings of the 15th Annual Review of Progress in Applied Computational Electromagnetics, Naval Postgraduate School, Monterey CA, 15-20 Mar 99.

Parks, J.M. and P.J. Collins, "Scattering from Dielectric Bodies," Proceedings of the 1999 IEEE Antennas and Propagation Society International Symposium and URSI National Radio Science Meeting, Orlando FL, July 1999.

Cochran, J.G., P.J. Collins, A.J. Terzuoli, Jr., and E.A Mendez, "Scattering from Bubbles in Radar Absorbing Material," Proceedings of the 45th Annual Tri-Service Radar Symposium, Monterey, CA, June 1999.

*Girard, J.A., A.J. Terzuoli, Jr., and P.J. Collins, "Radar Cross Section Fluctuations Due to Dynamic Wing Flex," Proceedings of the 45th Annual Tri-Service Radar Symposium, Monterey, CA, June 1999.

D'AZZO, JOHN J. (ENG)

*D'Azzo, J.J. and M. Pachter, " Stability Theory: Frequency and Time Domain Methods, Including Saturation Effects," Vol. 20, Encyclopedia of Electrical and Electronics Engineering, J. G. Webster, Editor, pp. 357-390, Wiley, 1999.

*Proud, A., M. Pachter, and J.J. D'Azzo, "Close Formation Flight Control," Proceedings of the 1999 AIAA Guidance, Navigation and Control Conference, Portland OR, 9-11 Aug 99.

DECKRO, RICHARD F. (ENS)

*Renfro, R. S., R.F. Deckro and J.M. Kloeber, "Modeling Individual Behavior," AFIT Technical Report CMSATR/99-01, August 1999.

*Winthrop, M.F., R.F. Deckro and J.M. Kloeber, "The Impact of Government R&D Expenditures on US Technology Advancement," Proceedings of PICMET 99, August 1999.

*Parnell, G.S., J.A. Jackson, J.M. Kloeber and R.F. Deckro, "Improving DOE Environmental Management: Using CERCLA-Based Decision Analysis for Remedial Alternative Evaluation in the RI/FS Process," Technical Report, VCU-MAS-99-1, Department of Mathematical Sciences, Virginia Commonwealth University, April 15, 1999.

DELOACH, Maj SCOTT A. (ENG)

DeLoach, S.A., "Multiagent Systems Engineering: A Methodology and Language for Designing Agent Systems," <u>Workshop on Agent-Oriented Information Systems (AOIS '99)</u>, pp. 45-58, Seattle WA, May 1999.

DeLoach, S.A. and M. Kokar, "Category Theory Approach to Fusion of Wavelet-Based Features," <u>Proceedings of the 2nd International Conference on Information Fusion (Fusion '99)</u>, Sunnyvale CA, 6-8 Jul 99.

*Hartrum, T.C. and S.A. DeLoach, "Design Issues for Mixed-Initiative Agent Systems," <u>AAAI-99 Workshop on Mixed-Initiative Intelligence</u>, pp. 40-44, Orlando FL, 18 Jul 99.

Baclawski, K., S.A. DeLoach, M. Kokar, and J. Smith, "Object-Oriented Parsing and Transformation," <u>Proceedings of Seventh OOPSLA Workshop on Behavioral Semantics of OO Business and System Specifications, OOPSLA'98</u>, pp. 13-32, Vancouver, Canada, October 1998.

FRANKE, MILTON E. (ENY)

Franke, M. E., "Engineering of Complex Systems for the Future," ASME International Mechanical Engineering Congress and Exposition, Anaheim, CA, <u>Proceedings of the Sessions on Global Technologies for the Competitive Edge</u>, 15-20 November 1998.

Snyder, C. H., M.E. Franke and M.L. Masquelier, "Wind Tunnel Tests of an Aircraft Turret Model," <u>Paper No. AIAA 99-0939, AIAA 37th Aerospace Sciences Meeting & Exhibit</u>, Reno, NV, 11-14 January 1999.

Franke, M. E., "Engineering of Complex Systems for Global Competitiveness," <u>Proceedings of the Pacific Rim/ASME International Intersociety Electronic & Photonic Packaging Conference & Exhibition</u>, InterPACK '99, Lahaina, Maui, Hawaii, 13-18 June 1999.

Endicott, T. L. and M.E. Franke, "Lean Space Launch Operations," <u>Paper No. AIAA 99-4614, AIAA Space Technology Conference & Exposition</u>, Albuquerque, NM, 28-30 September 1999.

GOLTZ, MARK N. (ENV)

*Garrett, C.A., J. Huang, M.N. Goltz, and G.B. Lamont, "Parallel Real-Valued Genetic Algorithms for Bioremediation Optimization of TCE-Contaminated Groundwater," <u>Proceedings of 1999 Congress on Evolutionary Computation, Vol. 3</u>, pp. 2183-2189, Washington DC, 6-9 July 1999.

Garrett, C.A., J. Huang, and M.N. Goltz, "Optimization of *In Situ* Bioremediation of Trichloroethylene Using Genetic Algorithms," <u>Engineered Approaches for In Situ Bioremediation of Chlorinated Solvent Contamination</u>, A. Leeson and B.C. Alleman, Eds., pp. 275-280, Battelle Press, Columbus, OH, 1999.

GRAHAM, Maj ROBERT P. (ENG)

Young, F. C., K. Stevens, and R. Graham, "Timed Logic Conformance and Its Application," <u>Proceedings of the 1999 ACM/IEEE International Workshop on Timing Issues in Specification and Synthesis of Digital Systems</u>, 8-9 Mar 99, Monterey CA.

GUSTAFSON, STEVEN C. (ENG)

Gustafson, S.C., A.W. Learn, G.R. Little, and J.S. Loomis, " Evolutionary Data Visualization," Proceedings of the SPIE, Vol. 3694, No. 11, pp. 83-92, Orlando FL, 7 Apr 99.

HARITOS, GEORGE K. (ENY)

D.B. Lanning, G.K. Haritos and T. Nicholas, "Notch Size Effects and LCF/HCF Interactions in Ti-6Al-4V," Proceedings of the 4th National Turbine Engine High Cycle Fatigue (HCF) Conference, Monterey, CA, February 8-11, 1999.

D.B. Lanning, G.K. Haritos and T. Nicholas, "High Cycle Fatigue Behavior and Notch Size Effects in Ti-6AI-4V," MD-Vol.84, Mechanical Behavior of Advanced Materials, ASME International Mechanical Engineering Congress and Exposition, pp. 19-25, Anaheim, CA, November, 1998.

HARTRUM, THOMAS C. (ENG)

*Hartrum, T.C. and S.A. DeLoach, "Design Issues for Mixed-Initiative Agent Systems," AAAI-99 Workshop on Mixed-Initiative Intelligence, pp. 40-44, Orlando FL, 18 Jul 99.

HENGEHOLD, ROBERT L. (ENP)

*D.E. Weeks, S.J. Novotny, S. Yang, and R.L. Hengehold, "Quantum Well Dispersion Relations," Diode Laser Technology Review Technical Digest, 10-13 May 1999, Fort Walton Beach, FL.

HILL, Lt Col RAYMOND R. (ENS)

Hill, R. R., "An Analytical Comparison of Optimization Problem Generation Methodologies," Proceedings of the 1998 Winter Simulation Conference, ed. D. J. Medeiros, E. F. Watson, J. S. Carson, and M. S. Manivannan, Washington, DC, pp. 813-817.

HOUPIS, CONSTANTINE H. (ENG)

Houpis, C.H. and S.J. Rasmussen, Book, QUANTITATIVE FEEDBACK THEORY – Fundamentals and Applications, published by Marcel Dekker, Inc., August 1999.

*Pachter, M. and C.H. Houpis, " Modeling of Electro-Hydraulic and Electro-Hydrostatic Actuators," CRC Measurement, Instrumentation and Sensors Handbook, invited article, pp. 99.1-99.11, CRC Press and IEEE Press, 1999.

KLOEBER, Lt Col JACK M. (ENS)

*Winthrop, M.F., R.F. Deckro, and J.M. Kloeber, "The Impact of Government R&D Expenditures on US Technology Advancement," Proceedings of PICMET 99, August 1999.

*Parnell, G.S., J.A. Jackson, J.M. Kloeber and R.F. Deckro, "Improving DOE Environmental Management: Using CERCLA-Based Decision Analysis for Remedial Alternative Evaluation in the RI/FS Process," Technical Report, VCU-MAS-99-1, Department of Mathematical Sciences, Virginia Commonwealth University, April 15, 1999.

Parnell, G.S., J.M. Kloeber, D. Westphal and V. Fung, "INEEL Subsurface Disposal Area CERLCA-Based Decision Analysis for Technology Screening and Remedial Alternative Evaluation," Toffler Associates Technical Report, Idaho National Environmental Engineering Laboratory, Lockheed Martin Idaho Technologies Company (LMITCO), Subcontract No. K99-568044, September 30, 1999.

KLOEBER, Lt Col JACK M. (ENS) (continued)

*Renfro, R. S., R.F. Deckro and J.M. Kloeber, "Modeling Individual Behavior," <u>AFIT Technical Report</u> <u>CMSATR/99-01</u>, August 1999.

KRAMER, Lt Col STUART C. (ENY)

*Colebank, J.E., R.D. Jones, G.R. Nagy, R.D. Pollak, D.R. Mannebach, S.C. Kramer, and G.S. Agnes, "SIMSAT: A Satellite Simulator and Experimental Test Bed for Air Force Research," <u>Proceedings of the</u> <u>AIAA 1999 Space Conference and Exposition</u>, Albuquerque, NM, AIAA-99-4428.

LAMONT, GARY B. (ENG)

Bohn, C. and G.B. Lamont, "Asymmetric Load Balancing on a Heterogeneous Cluster of PCs," <u>1999</u> <u>Parallel and Distributed Processing Techniques and Applications Conference, PDPTA'99</u>, pp. 2515-2522, Las Vegas NV, June 1999.

Marmelstein, R.E. and G.B. Lamont, "A Method for Mining Simplified Decision Rule Sets," <u>1999</u> <u>Computational Intelligence Methods and Applications Conference, CIMA'99</u>, CD-ROM, Rochester NY, June 1999.

Marmelstein, R.E. and G.B. Lamont, "A Concurrent Approach for Evolving Compact Data Sets," Vol II, pp. 3695-6, Orlando FL, 5-9 Apr 99.

Marmelstein, R.E. and G.B. Lamont, "GRaCCE: A Genetic Environment for Data Mining," <u>Intelligent</u> <u>Engineering Systems Through Artificial Neural Networks, ANNIE'98</u>, Vol. 8, pp. 405-412, St Louis MO, ASME Press 1998.

Marmelstein, R.E. and G.B. Lamont, "A New Approach for Evolving Clusters," <u>Proceedings of the 1999</u> <u>ACM Symposium on Applied Computing, SAC'99</u>, pp. 268-274, San Antonio TX,   28 Feb-2 Mar 99.

Van Veldhuizen, D.A. and G.B. Lamont, 'Multiobjective Evolutionary Algorithm Research: A History and Analysis," <u>AFIT Technical Report TR-98-03</u>, Air Force Institute of Technology, 1998.

Van Veldhuizen, D.A. and G.B. Lamont, "Parallelizing the Multiple Objective Evolutionary Algorithm," <u>9th SIAM Conference on Parallel Processing for Scientific Computing</u>, CD-ROM, San Antonio TX, 22-24 Mar 99.

Van Veldhuizen, D.A. and G.B. Lamont, "Multiobjective Evolutionary Algorithm Test Suites," <u>Proceedings of 1999 ACM Symposium on Applied Computing</u>, SAC'99, pp. 351-357, San Antonio TX, 28 Feb-2 Mar 99.

Van Veldhuizen, D.A., R.E. Marmelstein, and G.B. Lamont, book chapter, "A Distributed Architecture for a Self-Adaptive Computer Virus Immune System," Springer-Verlag, 1999.

Van Veldhuizen, D.A., R.E. Marmelstein, and G.B. Lamont, "A Distributed Architecture for an Adaptive Computer Virus Immune System," <u>1998 IEEE International Conference on Systems, Man, and</u> <u>Cybernetics, SMC'99</u>, pp. 3838-3843, San Diego CA, October 1998.

*Garrett, C., J. Huang, G.B. Lamont, and M. Goltz, "Parallel Real-Valued Genetic Algorithm for Bio-Remediation Optimization of TCE-Contaminated Groundwater," <u>IEEE 1999 Congress on Evolutionary</u> <u>Computation</u>, pp. 2183-2189, Washington DC, 6-9 Jul 99.

LIEBST, BRADLEY S. (ENY)

*Swenson, E. D., J.S. Turcotte, B.S. Liebst and H.A. Arb, "Damage Detection Using Pattern Classifiers", Proceedings of the SEM Annual Conference on Theoretical, Experimental and Computational Mechanics, Cincinnati, OH, 7-9 June, 1999, pp. 66-69.

*Spenny, C. H. and B.S. Liebst, "Model of a Centrifuge Operated as a Sustained-G Flight Simulator, Delta Model Addendum," AFIT Research Report to Environmental Tectonics Corp., 31 December, 1998.

Liebst, B. S. and A. Saad, "An Analytic Criterion for the Prediction and Analysis of Wing Rock Onset", Proceedings of the 1999 AIAA Atmospheric Flight Mechanics Conference, Portland, OR, 9-11 August 1999, pp. 242-249.

LOTT, Maj JAMES A. (ENG)

Lott, J.A., "Progress in Red Vertical Cavity Surface Emitting Lasers," Proceedings of the 7th International Symposium Nanostructures: Physics and Technology, St Petersburg, Russian Federation, 14-18 Jun 99.

Lott, J.A., N.N. Ledentsov, V.M. Ustinov, Zh. I. Alferov, and D. Bimberg, "Long Wavelength (1.3 um) Quantum Dot Vertical Cavity Surface Emitting Lasers Grown Directly on GaAs Substrates," Proceedings of the Advanced Workshop on Frontiers in Electronics, Villard de Lans, Grenoble, France, 31 May- 4 Jun 99.

Noble, M.J., J.P. Loehr, and J.A. Lott, "Semi-Analytic Calculation of Diffraction Losses and Threshold Currents in Microcavity VCSELs," Proceedings of the IEEE Lasers and Elecro-Optics Society Annual Meeting, Orlando FL, 01-04 Dec 98.

Noble, M.J., J.P. Loehr, and J.A. Lott, "Comprehensive Design Study of Low-Threshold Microcavity VCSELs," SPIE 3627-13 Photonics West '99, San Jose CA 23-29 Jan 99.

Noble, M.J., J.P. Loehr, and J.A. Lott, "Comparison of Optical Analysis Methods for Oxide-Apertured VCSELs," SPIE 3625-42, Photonics West '99, San Jose CA, 23-29 Jan 99.

Noble, M.J., J.A. Lott, and P. Sotirelis, "Overview of Air Force In-House VCSEL Modeling Work," Proceedings of the IEEE Summer Topicals, San Diego CA, 26-30 Jul 99.

Noble, M.J., P. Sotirelis, J.A. Lott, and J.P. Loehr, "Microcavity Surface Emitting Laser Simulation Using Vector Finite Elements," Proceedings of the 1999 DoD HPCMP (High Performance Computing Modernization Program, Users Group Conference, Monterey CA, 7-10 Jun 99.

MAGEE, Maj ERIC P. (ENG)

Magee, E.P. and T.J. Kane, "Bisatic Coherent Laser Radar Performance: CW SNR Calculations," Proceedings of the 10th Biennial Coherent Laser Radar Technology and Applications Conference, pp. 256-259, Mt Hood OR, Jun 99.

MALL, SHANKAR (ENY)

Lykins, C. and S. Mall, "High cycle Fretting Fatigue Behavior of Ti-6-4", Proceedings of The Seventh International Fatigue Conference, June 8-12, 1999, Beijing, China.

Mall, S. and T.L. Hsu, "Electromechanical Fatigue behavior of Graphite/Epoxy Laminate Embedded with Piezoelectric Actuator", Proceedings of 6th Annual International Symposium on Smart Structures and Materials, 770-779, Newport Beach, CA, 1-5 March 1999.

MALL, SHANKAR (ENY) (continued)

Iyer, K. and S. Mall, "Fretting Fatigue of Ti-6AL-4V under Variable-Amplitude Loading", <u>Proceedings of 4th National Turbine Engine High Cycle Fatigue Conference</u>, Feb. 9-11, 1999, Monterey, CA.

Hamrick, J. L., S. Mall and T. Nicholas, "High Cycle Fatigue Life of Ti-6AL-4V after being Subjected to Foreign Object Damage", <u>Proceedings of 4th National Turbine Engine High Cycle Fatigue Conference</u>, Feb. 9-11, 1999, Monterey, CA.

Al-Hussien, M., S. Mall and J.R. Calcaterra, "Monotonic and Fatigue Loading Behavior of a 2-D Woven Ceramic Matrix Composite at Room and Elevated Temperatures," <u>Proceedings of 12th International Conference on Composite Materials</u>, 6-9 July 1999, Paris.

Gao, X. L. and S. Mall, "A Generic Micromechanics Model for Planar Woven fabric Composites", <u>Proceedings of American Society for Composites Fourteenth Technical Conference</u>, Dayton, OH, 917-926, MD, Sept. 27-29, 1999.

Mall, S., "Structural Integrity of Composite Structures Embedded with Piezoelectric Actuators", <u>Proceedings of International Conference On Smart Materials, Structure and Systems</u>, Banglore, India, 7-10 July 1999.

MAYBECK, PETER S. (ENG)

Hanlon, P.D. and P.S. Maybeck, "Characterization of Kalman Filter Residuals in the Presence of Mismodeling," <u>Proceedings of the 1988 Conference on Decision and Control</u>, pp. 1254-1259, Tampa FL, December 1998.

Hanlon, P.D. and P.S. Maybeck, "Multiple-Model Adaptive Estimation Using Residual Correlation Kalman Filter Bank," <u>Proceedings of the 1998 Conference on Decision and Control</u>, pp. 4494-4495, Tampa FL, December 1998.

Vasquez, J.R. and P.S. Maybeck, "Enhanced Motion and Sizing of Bank in Moving-Bank MMAE," <u>Proceedings of the 1999 American Control Conference</u>, pp. 1555-1562, San Diego CA, June 1999.

*Vanek, B.J., P.S. Maybeck, and J.F. Raquet, "GPS Signal Offset Detection and Noise Strength Estimation in a Parallel Kalman Filter Algorithm," <u>Proceedings of the 1999 ION GPS-99 Conference</u>, Nashville TN, September 1999.

McINTYRE, Lt Col GREGORY A. (ENS)

McIntyre, G. A. and K.J. Hintz, "A Comparison of Several Maneuvering Target Tracking Models," <u>Signal Processing, Sensor Fusion, and Target Recognition VII, Proceedings of the SPIE</u> - The International Society for Optical Engineering, Vol. 3374, Orlando, FL, 13-15 April 1998, pp. 249-255.

MILLER, Lt Col JOHN O. (ENS)

*Roland, R.J., M. Macedonia, J. Metzger, J. Andrew and J.O. Miller, "Panel: The Future of Military Simulation," <u>Proceedings of the 1998 Winter Simulation Conference</u>, ed. D. J. Medeiros, E. F. Watson, J. S. Carson, and M. S. Manivannan, Washington, DC, pp. 813-817.

MILLER, Lt Col MIKEL M. (ENG)

Johnston, K.D., "A Comparison of CW and Swept CW Effects on a C/A Code GPS Receiver, " Proceedings of the 11th ION GPS-99, Nashville TN, 14-17 Sep 99. (This was a student paper, thus only the student's name could be on it).

Johnston, K.D. and M.M. Miller, "CW Jamming Effects on a COTS C/A Code GPS Receiver, " Proceedings of the 11th ION GPS-99, Nashville TN, 14-17 Sep 99.

Young, B.J. and M.M. Miller, "An Integrated SAR/GPS/INS for Target Geolocation Improvement," Proceedings of the 55th Annual Meeting, Cambridge MA, 28-30 Jun 99.

MINER, Lt Col CECILIA A. (ENP)

Miner, T.H., and C.A. Miner, "Impact on Aircraft Operations of Pilot Access to Updated Automated Temperatures." Preprints, Eighth Conference on Aviation, Range, and Aerospace Meteorology, Dallas, TX, American Meteorological Society, 1999.

MOORE, JAMES T. (ENS)

*Ryan, J. L., T.G. Bailey, J.T. Moore and W.B. Carlton, "Reactive Tabu Search in Unmanned Aerial Reconnaissance Simulations," Proceedings of the 1998 Winter Simulation Conference, ed. D. J. Medeiros, E. F. Watson, J. S. Carson, and M. S. Manivannan, Washington, DC.

MURDOCK, Maj W. PAUL (ENS)

Cassady, C.R., W.P. Murdock and E.A. Pohl, "A Deterministic Selective Maintenance Model for Complex Systems," Recent Advances in Reliability and Quality Engineering, World Scientific Publishers, 1999.

NIXON, Lt Col Wm. Brent (ENV)

Palmer, J.R., and W.B. Nixon. "Optimization of an MSW Separation System." Proceedings of the Air & Waste Management Association's 92nd Annual Meeting & Exhibition, St. Louis MO, June 20-24, 1999. 99-212. Pittsburgh: A&WMA, 1999.

OXLEY, MARK E. (ENC)

Carter, M. A. and M. E. Oxley, "Generalized Measures of Artificial Neural Network Capability," Proceedings of SPIE, Applications and Science of Computational Intelligence II, pp. 68-75, Orlando FL, 5-8 April 1999.

Oxley, M. E. and M. A Carter, "Evaluating the Vapnik-Chervonenkis Dimension of Artificial Neural Networks using the Poincare Polynomial," Proceedings of SPIE, Applications and Science of Computational Intelligence II, pp. 36-47, Orlando FL, 5-8 April 1999.

Oxley, M. E., "Whitney Reduction Networks for Process Discovery," Second International Conference on Intelligent Processing and Manufacturing of Materials, pp. 1371-1380, Honolulu, HI, 10-15 July 1999.

PACHTER, MEIR (ENG)

Pachter, M., "An Algorithm for Control System Loop Gain Identification," Proceedings of the Mediterranean Control Conference, Haifa, Israel, 28-30 Jun 99.

PACHTER, MEIR (ENG) (continued)

*Pachter, M. and C.H. Houpis, " Modeling of Electro-Hydraulic and Electro-Hydrostatic Actuators," CRC Measurement, Instrumentation and Sensors Handbook, invited article, pp. 99.1-99.11, CRC Press and IEEE Press, 1999.

Pachter, M. and M. Oppenheimer, "Algorithm Development for On-Line Control of the ABL," 1999 AeroSense Conference, SPIE Proceedings, Vol. 3706, pp. 349-360, Orlando FL, 5-9 Apr 99.

Pachter, M. and S. Nardi, book chapter, "Stochastic Modeling in GPS Estimation Algorithms," Advances in Intelligent Systems: Concepts, Tools and Applications, S. Tzafestas, Editor, Kluwer Academic, 1999.

*D'Azzo, J.J. and M. Pachter, " Stability Theory: Frequency and Time Domain Methods, Including Saturation Effects," Encyclopedia of Electrical and Electronics Engineering, J. G. Webster, Editor, Vol. 20, pp. 357-390, Wiley, 1999.

Suter, B.W. and M. Pachter, "Multidimensional Signal Processing," Encyclopedia of Electrical and Electronics Engineering, Vol. 13, pp. 565-581, Wiley, 1999.

Proud, A., M. Pachter, and J.J. D'Azzo, "Close Formation Flight Control," Proceedings of the 1999 AIAA Guidance, Navigation and Control Conference, Portland OR, 9-11 Aug 99.

Chandler, P. and M. Pachter, "Parameter Estimation for Over-Actuated Aircraft with Nonlinear Aerodynamics," Proceedings of the 1999 AIAA Guidance, Navigation and Control Conference, Portland OR, 9-11 Aug 99.

McNamee J. and M. Pachter, "Efficient Nonlinear Reference Governor Algorithm for Constrained Tracking Control Problem," Proceedings of the American Control Conference, San Diego CA, 2-4 Jun 99.

Nardi, S. and M. Pachter, "GPS Estimation Algorithm Using Stochastic Modeling," Proceedings of the 1998 Conference on Decision and Control, Tampa FL, 16-18 Dec 98.

Lin, Z. and M. Pachter, "State and Output Feedback Design for Robust Tracking of Nonlinear Systems," Proceedings of the 14th IFAC World Congress, Vol C, pp. 163-168, Beijing, China, July 1999.

PYATI, VITTAL P. (ENG)

Mediavilla, R., W. O'Connor, and V.P. Pyati, "Terrain Backscatter Coefficient Generator," abstract of EMCC Annual Meeting, HRL Laboratories, Malibu CA, April 1999.

RAINES, Maj RICHARD A. (ENG)

K.E. Crowe, R.A. Raines, and D.T. Goldizen, "A Comparative Analysis of the Iridium and Globalstar Satellite System Transmission Paths," The 8th International Aerospace Congress, Adelaide, South Australia, pp. 1-10, 13-15 September 1999.

RAQUET, Capt JOHN F. (ENG)

*Vanek, B.J., P.S. Maybeck, and J.F. Raquet, "GPS Signal Offset Detection and Noise Strength Estimation in a Parallel Kalman Filter Algorithm," Proceedings of the 1999 ION GPS-99 Conference, Nashville, TN, September 1999.

Fortez, L., G. Lachapelle, M.E. Cannon, G. Marceau, S. Ryan, S. Wee, J. Raquet, "Testing of a Multi-Reference GPS Station Network for Precise 3D Positioning in the St. Lawrence Seaway," Proceedings of the 1999 ION GPS-99 Conference, Nashville, TN, September 1999.

SPENNY, CURTIS H. (ENY)

Spenny, C.H. and R.G. Glassco, " Closely Supervised Control of a Target-Steered UAV," Proceedings of the SPIE, Telemanipulator and Telepresence Technologies VI, Vol. 3840, pp 179-190, Sept 1999.

*Spenny, C. H. and B.S. Liebst, "Model of a Centrifuge Operated as a Sustained-G Flight Simulator, Delta Model Addendum," AFIT Research Report to Environmental Tectonics Corp., 31 December, 1998.

TERZUOLI, ANDREW J., JR., (ENG)

Girard, J.A., A.J. Terzuoli, Jr., and P.J. Collins, "Radar Cross Section Fluctuations Due to Dynamic Wing Flex," Proceedings of the 45th Annual Tri-Service Radar Symposium, Monterey CA, June 1999.

Eigel, Jr., R.L. and A.J. Terzuoli, Jr., "Biostatic Radar Cross Section of Complex Objects," Proceedings of the 1999 IEEE/APS International Symposium, pp. 1784-1787, Orlando FL, 11-16 Jul 99.

Eigel, Jr., R.L. and A.J. Terzuoli, Jr., "Bistatic Scattering from Complex Objects," Proceedings of the XXVIth General Assembly, Toronto, ON, Canada, p. 400, 13-21 Aug 99.

Utton, T.S. and A.J. Terzuoli, Jr., "Application of the Finite Difference Time Domain (FDTD) Technique to the Analysis and Design of Transverse Electromagnetic (TEM) Horns," Proceedings of the XXVIth General Assembly, p. 666, Toronto, ON, Canada, 13-21 Aug 99.

*Cochran, J.G., P.J. Collins, A.J. Terzuoli, Jr., and E.A Mendez, "Scattering from Bubbles in Radar Absorbing Material," Proceedings of the 45th Annual Tri-Service Radar Symposium, Monterey CA, June 1999.

Eigel, R. L, Jr., A.J. Terzuoli, Jr., and G. Nesti, "Bistatic Radar Cross Section of Complex Objects," Proceedings of the 1999 International Geoscience and Remote Sensing Symposium, pp. 455-457, Hamburg, GE, 28 Jun-2 Jul 99.

TURCOTTE, Lt Col JEFFREY S. (ENY)

E. D. Swenson, J. S. Turcotte, B. S. Liebst, H. A. Arb and M. P. DeSimio, "Damage Detection Using Pattern Classifiers," Proceedings of the SEM Annual Conference on Theoretical, Experimental and Computational Mechanics, 7-9 June, 1999, pp. 66-69.

J. S. Turcotte, "A Coupled Plate Model of a Bladed Disk Assembly," Proceedings of the 35th AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit, June 20-23, 1999, Los Angeles, CA, paper no. AIAA-99-2809.

WALTERS, MICHAEL K. (ENP)

Walters, Michael K., and J.D. Shull, "A Validation Study of the Air Force Weather Agency (AFWA) JETRAX Contrail Forecast Algorithm." <u>Eighth Conference on Aviation, Range, and Aerospace Meteorology</u>, Dallas, TX, Amer. Meteor. Soc., 591-595, 1999.

WEEKS, DAVID E. (ENP)

T. A. Niday (GAP-98M) and D.E. Weeks, "Scattering Matrix Elements for the Fine Structure Transition $B(^2P_{1/2}) + H_2(j)$ $B(^2P_{3/2}) + H_2(j)$," <u>Proceedings of the High Energy Density Matter (HEDM) Contractors' Conference</u> Held 8-10 June 1999 in Cocoa Beach FL, AFOSR Technical Report, in press.

*D.E. Weeks, S.J. Novotny, S. Yang, and R.L. Hengehold, "Quantum Well Dispersion Relations," <u>Diode Laser Technology Review Technical Digest</u>, 10-13 May 1999, Fort Walton Beach, FL.

WOLF, Lt Col PAUL J. (ENP)

J.C. Holtgrave and P.J. Wolf, "Collisional Broadening and Shift of Sr Lines by the Rare Gases," <u>Bulletin of the American Physical Society</u>, **44**(1), Part II, pg 1640 (1999).

3.12 SUBSTANTIAL CONSULTATIONS

[*Denotes duplicate entry, multiple faculty contributors.]

BAILEY, Lt Col T. GLENN (ENS)

*Served as statistical consultant (with Dr. Bauer, ENS) for Department of Justice concerning mediation with Raytheon.

BAILEY, WILLIAM F. (ENP)

Evaluation of alternative Stealth technologies for Air Force Research Laboratory.

Analysis of shock modification in non-equilibrium flows for Air Force Research Laboratory.

BROTHERS, Maj CHARLES P., JR. (ENG)

Brothers, Charles P., Jr.. Consultation: Space Electronics & Advance SOI Fabrication. Sponsor: AFRL/SND

Brothers, Charles P., Jr.. Consultation: Space Electronics. Sponsor: AFRL/VSSE

BROWN, WILLIAM M. (ENG)

*Terzuoli, A.J., Jr., P.J. Collins, and W.M. Brown. Consultation: Computer Model Simulation Studies in Support of High Resolution Radar, Synthetic Aperture Radar and Infrared Vision. Sponsor: AFRL/SN

CHAN, YUPO (ENS)

Consulted with the National Security Agency on information warfare/operations, Dec 1998 and May 1999.

Consulted with AFRL/HECI on the low observable in-flight replanning program.

CHRISSIS, JAMES W. (ENS)

Consulted with ASC Electronic Combat Development System Program Office on the integration of a computerized production design, manufacturing, and control system.

COLLINS, Maj PETER J. (ENG)

Collins, P.J. Consultation: Antenna Characterization. Characterized several antennas used to assess US electronic warfare systems and produced a test report dated July 1999. Sponsor: AFIWC/SMV

*Terzuoli, A.J., Jr., P.J. Collins, and G.A. Thiele. Consultation: Impulse Radiating TEM Horn Antenna Design. Sponsor: AFRL/DE

*Terzuoli, A.J., Jr., and P.J. Collins. Consultation: Bubbles in RAM. Sponsor: ASC/EN

*Terzuoli, A.J., Jr., P.J. Collins, and W.M. Brown. Consultation: Computer Model Simulation Studies in Support of High Resolution Radar, Synthetic Aperture Radar and Infrared Vision. Sponsor: AFRL/SN

CROWN, Maj JOHN S. (ENC)

Crown, J. S. Consultation: Perchlorate in Fertilizers. Sponsor: AFRL/HEST. August-September 1999.

DECKRO, RICHARD F. (ENS)

Worked with DARPA and OSD OT&E on formulating Information Assurance issues, procedures and policies.

Participated with AIA DO-2 on developing measures for physiological operations.

DELOACH, Maj SCOTT A. (ENG)

DeLoach, Scott A. Consultation: Virtual Expert Cost-Estimator for Air-Vehicle Science and Technology (VECAST). Sponsor: AFRL/VA

FRANKE, MILTON E. (ENY)

Franke, M. E. Consultation: ASME International (Committee on Planning and Organization), 17-18 November 1998, 11-13 March 1999, 8-9 June 1999, 12 September 1999.

Franke, M. E., Consultation: AIAA Weapon Systems Effectiveness Technical Committee, 12 January 1999, 6-8 April 1999, 19 July 1999.

Franke, M. E., Consultation: AFRL/MN, Joined-Wing Missile Model Test Results, 12 April 1999.

Franke, M. E., Consultation: AFRL/MLMA, Lean Aerospace Initiative (Test and Space Operations), March-April 1999 (2 days), 24-25 June 1999, July-September 1999 (3 days).

Franke, M. E., Consultation: AFRL/DE, Heat Transfer Research, June 1999 (1 day), 29 September 1999.

Franke, M. E., AFRL/VACM, Heat Transfer Research, January-September 1999 (2 days).

GUNSCH, GREGG H. (ENG)

Gunsch, G.H.. Consultation: Invited member of a senior scientist search committee to develop an appropriate set of hiring criteria for the branch's Senior Scientist position and a list of potential candidates to pursue. Sponsor: AFRL/IFGB

JACOBS, Maj TIMOTHY M. (ENG)

Jacobs, T.M.. Consultation: Visualization of Airlift Flow Model Simulating Worldwide Air Mobility Missions. Sponsor: AMC/XP

Jacobs, T.M.. Consultation: Visual Tools to Navigate and Consolidate Intelligence Data for Project BROADSWORD. Sponsor: AFRL/IFED

Jacobs, T.M.. Consultation: AFIT-ASC collaboration to make greater use of the MSRC during systems acquisition; co-investigator: Bailey (ENS). Sponsor: ASC/HP

JODOIN, Maj VINCENT J. (ENP)

Advised DTRA/CPWE, USSTRATCOM/J53, and UK MOD on capabilities and possible improvements to current and future nuclear weapon fallout models.

JOHN, GEORGE (ENP)

Collaboration with AFML Tribology Branch on applications of Mossbauer Spectrometry to problems in tribology. Funding for equipment and materials provided by AFML. No formal project established.

KLOEBER, LTC JACK M., Jr. (ENS)

Co-taught a 4.5-day course to 32 Army Logistics Management College attendees at Ft. Lee, VA, January 1999.

Instructor and consultant to ACC's and AFSPC's project for improved and combined modernization efforts.

Independent consultant for Toffler Associates working with the INEEL and Hazardous Waste Cleanup Problem in Idaho Falls, ID, Summer 1999.

LAMONT, GARY B. (ENG)

Lamont, G.B. Consultation: Computational Circuit Simulation. Sponsor: AFRL/Avionics Directorate.

Lamont, G.B. Consultation: Computational Micro-Biology. Sponsor: AFRL/Materials Directorate.

Lamont, G.B. Consultation: Computational Digital Signal/Image Processing. Sponsor: AFRL/Rome Laboratory

LOTT, Maj JAMES A. (ENG)

Lott, J.A.. Consultation: Design, Fabrication, Characterization, and Analysis of Microcavity Lasers. Sponsor: AFRL/SND

MAGEE, Maj ERIC P. (ENG)

Magee, E.P.. Consultation: Bi-directional Reflectance Distribution Function (BRDF) experiments. Sponsor: AFRL/SNJ.

MILLER, Lt Col MIKEL M. (ENG)

Miller, M.M. and J.F. Raquet. Consultation: Consulted with the 746th Test Squadron concerning current GPS technology. Sponsor: 746th Test Squadron

MURDOCK, Maj W. PAUL (ENS)

Member of the System Evaluation and Analysis Simulation (SEAS) Tiger Team sponsored by HQ USAF/XOC to evaluate SEAS for inclusion in the Air Force Suite of Models.

NIXON, Lt Col WM. BRENT (ENV)

Lt Col Nixon serves as a member of the HQ AFMC Environmental Restoration Peer Review Committee, providing technical guidance and funding recommendations for projects in the Command's $120-million FY99 environmental restoration program.

Lt Col Nixon, in cooperation with the Air Force Center for Environmental Excellence, provided technical peer review of 13 projects ($46 million) managed by the Air Force Base Conversion Agency for O'Hare and Chanute AFB IL.

PACHTER, MEIR N. (ENG)

Pachter, M.. Consultation: Member of AFRL/VAAD AFOSR Star Team. Sponsor: AFRL/VAAD

PERRAM, Lt Col GLEN P. (ENP)

Evaluated Small Business Innovative Research proposals on advanced lasers for the Ballistic Missile Defense Office.

RAQUET, Capt JOHN F. (ENG)

*Miller, M.M. and J.F. Raquet. Consultation: Consulted with the 746th Test Squadron concerning current GPS technology. Sponsor: 746th Test Squadron

TALBERT, Maj MICHAEL L. (ENG)

Talbert, M.L.. Consultation: A Sponsored Deployment Object Working Group (DOWG) via telecon. This is done on a recurring basis. Sponsor: DARPA

Talbert, M.L.. Consultation: Hand-picked database consultant to Base Tiger Team to investigate suspiciously Non-random nature of urinalysis test selection. Tentative findings were that software function used to generate random number seed is based on a repeating value generated by system clock.

Talbert, M.L. Consultation: Surveillance and Reconnaissance Database done for HQ USAF/XOIR DCS. Provided consulting services to the Air Force Tactical Exploitation of National Capabilities (AF TENCAP). Consult redirected the database effort and directly saved the AF TENCAP program $70,000. Sponsor: USAF/XOIR DCS.

Talbert, M.L. Consultation: Consortium for DARPA-sponsored Deployment Object Working Group

TERZUOLI, ANDREW J., JR. (ENG)

Terzuoli, A.J., Jr., P.J. Collins, and G.A. Thiele. Consultation: Impulse Radiating TEM Horn Antenna Design. Sponsor: AFRL/DE

Terzuoli, A.J., Jr., and P.J. Collins. Consultation: Bubbles in RAM. Sponsor: ASC/EN

Terzuoli, A.J., Jr., P.J. Collins, and W.M. Brown. Consultation: Computer Model Simulation Studies in Support of High Resolution Radar, Synthetic Aperture Radar and Infrared Vision. Sponsor: AFRL/SN

TURCOTTE, Lt Col JEFFREY S. (ENY)

Turcotte, Jeffrey S. Consultation: Transient analysis of a solar thermal orbit transfer vehicle for reflector focus performance. Sponsor: AFRL/PR (Edwards AFB). 1 October 1998 – Present.

WALTERS, MICHAEL K. (ENP)

Consulted with members of the 88th Weather Squadron in support of the ASC Reconnaissance Systems Program Office to explore the use of reconnaissance assets as platforms for gathering meteorological data in support of theater operations. Assisting in data analysis to evaluate platform/sensor applicability.

3.13 PRESENTATIONS

[* Denotes duplicate entry, multiple faculty involved in the presentation.]

AGNES, Capt GREGORY S. (ENY)

Agnes, Gregory S. "An Earth to Orbit Simulation of Hybrid Launch Isolation," Presented at the 1999 ASME/AMD/MD Mechanics and Materials Conference, Blacksburg, VA, 27-30 June, 1999.

Agnes, Gregory S. "Smart Structures for Vibration Suppression of Optical Surfaces," Structural Mechanics Workshop, WPAFB, OH , 27-29 Sep 1999.

ANDREW, Col JOHN M. (ENS)

*Roland, R. J., Macedonia, M., Metzger, J., Andrew, J., and Miller, J. O., "Panel: The Future of Military Simulation," 1998 Winter Simulation Conference, Washington, DC, 13-16 Dec 1998.

*Andrew, J. M., Bailey, T. G., and Chrissis, J. W., "Modeling, Simulation, and Analysis Education at the Air Force Institute of Technology," 67th Military Operations Research Society Symposium, U. S. Military Academy, West Point, NY, 22-24 June 1999.

BAILEY, Lt Col T. GLENN (ENS)

Bailey, T. G., "The C-17 Airlift Loading Model," Fall National Meeting of the Institute for Operations Research and Management Sciences (INFORMS), Seattle WA, October 1998.

Bailey, T. G., "Unmanned Aerial Reconnaissance Vehicle Routing," Fall National Meeting of INFORMS, Seattle, WA, October 1998.

*Hill, R. R., Bailey, T. G., and McIntyre, G. A., "Application of the New Sciences in Military Modeling," Spring National Meeting of INFORMS, Cincinnati, OH, May 1999.

*Walston, J. G., Bailey, T. G., and Hill, R. A., "Unmanned Aerial Vehicle Engagement Level Simulation," 67th Military Operations Research Society Symposium (MORSS), U. S. Military Academy, West Point, NY, 22-24 June 1999.

*O'Rourke, K. P., Bailey, T. G., Hill, R. R., and Carlton, W. B. "Dynamic Routing of Unmanned Aerial Vehicles Using Reactive Tabu Search," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Romaine, J. M., Bailey, T. G., Deckro, R. F., and Carlton, W. B, "Solving the Airlift Loading Problem Using Reactive Tabu Search," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Szvetecz, T. S., Bailey, T. G., Kloeber, J., and Carlton, W. B., "The Simulation and Visualization of Airborne Operations," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Ryer, D. M., Bailey, T. G., Moore, J. T., and Carlton, W. B., "Route Selection for the Mobility Analysis Support System Using Tabu Search," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Gaupp, M., Hill, R. R., and Bailey, T. G., "PICAS: Pilot Inventory Complex Adaptive System," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

BAILEY, Lt Col T. GLENN (ENS) (continued)

*Andrew, J. M., Bailey, T. G., and Chrissis, J. W., "Modeling, Simulation, and Analysis Education at the Air Force Institute of Technology," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Fox, S., Bailey, T. G., and Carlton, W. B., "C-17 Airdrop Simulation," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

BAILEY, WILLIAM F. (ENP)

Smithtro, C.G. and Bailey, W. F., "Numerical Solutions to the Spatially Inhomogeneous Boltzmann Equation," Ohio Section of the American Physical Society, Spring Meeting, 30 April 1999.

Tersigni, F. A. and Bailey, W. F., "Influence of a Geometrically Induced Space Chare on the Electron Energy Distribution Function," Ohio Section of the American Physical Society, Spring Meeting, 30 April 1999.

Walker, S.L. and Bailey, W. F., "The Influence of Electron Temperature Variations on Shock Structure in a Glow Discharge," Ohio Section of the American Physical Society, Spring Meeting, 30 April 1999.

BAUER, KENNETH W. (ENS)

*Cordeiro, J. D., Friend, M., Bauer, K. W., Miller, J. O., and Kloeber, J. M. "Using Simulation to Model Time Utilization of Army Recruiters," 37th Army Operations Research Symposium, Fort Leavenworth, KS, Oct 1998.

Blasch, E.P., Alsing, S.G., and Bauer, K.W., "Comparison of Bootstrap and Prior-probability Synthetic Data Balancing Methods for SAR Target Recognition," Algorithms for Synthetic Aperture Radar Imagery VI, Orlando, FL, 5-9 April 1999.

Alsing, S.G., Bauer, K. W., and Blasch, E. P., "Three-Dimensional (3-D) Receiver Operating Characteristic (ROC) Concepts for the Evaluation of Target Recognition Algorithms Faced with the Unknown Target Detection Problem," Automatic Target Recognition IX, Orlando, FL, 7-9 April 1999.

BLECKMANN, CHARLES A. (ENV)

*Johnson, L.M., A.M. Halterman-O'Malley, B. Burke, D. Kellner, C. A. Bleckmann, M. N. Goltz and E.C. Heyse. Biodegradation of Aircraft Deicing Agents in Soils: Laboratory Studies. In Situ and On-Site Bioremediation, Fifth International Symposium. April 19-22, 1999. San Diego, CA.

BROTHERS, Maj CHARLES P., JR. (ENG)

SanGregory, S., C. Brothers, D. Gallagher, and R. Siferd, "A Fast Low-Power Logarithm Approximation with CMOS VLSI Implementation," 42nd Midwest Symposium on Circuits and Systems, Las Cruses NM, 8-11 Aug 99.

BURGGRAF, LARRY W. (ENP)

L.W. Burggraf and James Shoemaker*. "Applications of SIMOMM: An Integrated Molecular Orbital/ Molecular Mechanics Optimization Scheme for Surfaces", Invited Chemistry Department Seminar, 2 Oct 1998.

B.L. Evans, J.B. Martin and L.W. Burggraf. "Characterization of a Multiplexed Compton Scatter Tomograph for Non-Destructive Inspection of Thin, Low-Z Samples." 1998 IEEE Nuclear Science Symposium and Medical Imaging Conference, Nov. 1998.

D. Eastwood, J. Martin, D. Rand, L.W. Burggraf, M. Zickafoose, D.L. Perry, "Photoluminescence of Uranium Compounds" (invited paper) in symposium on Photophysics and Application of Luminescent Metal Complexes, J.W. Hofstraat, D. Eastwood (organizers), Eastern Analytical Symposium, November 15-20, 1998.

L.W. Burggraf. "Measures and Models for Metal Toxicity in Bioremediation", Invited Geophysics Department, Wright State University, 18 Feb 1999.

H.T. Mayfield, D. Eastwood and L.W. Burggraf, "Pattern Recognition of Organophosphorus Pesticide and Chemical Agent Infrared Spectra" Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Orlando, FL, March 7-12, 1999.

CHAN, YUPO (ENS)

Chan, Y., "Multi-Criteria Stochastic Network Optimization: Improving Reliability vs. Throughput," Fall National Meeting of the Institute for Operations Research and Management Sciences (INFORMS), Seattle WA, October 1998.

Chan, Y., "Multi-Criteria Stochastic-Network Optimization: Reliability, Throughput and Extensions," Hong Kong Polytechnic University, Hong Kong, 12 Feb 1999.

Chan, Y., "Telecommunications Networks Research in AFIT," Australian Defense Science & Technology Organization, Adelaide, Australia, 17-21 March 1999.

Chan, Y., "Telecommunications Networks Research in AFIT" and "Network Reliability, Throughput and Gaming," Australian Defense Science & Technology Organization, Adelaide, Australia, 17-21 March 1999.

*Chan, Y., Isensee, E., and Chrissis, J., "Multi-Criteria Vehicle Routing: Security vs. Efficiency," Spring National Meeting of INFORMS, Cincinnati, OH, May 1999.

Chan, Y., "Improving Telecommunications Network Performance: Reliability, Throughput And Information Security," 67th Military Operations Research Society Symposium, U. S. Military Academy, West Point, NY, 22-24 June 1999.

CHRISSIS, JAMES W. (ENS)

*Andrew, J. M., Bailey, T. G., and Chrissis, J. W., "Modeling, Simulation, and Analysis Education at the Air Force Institute of Technology," 67th Military Operations Research Society Symposium, U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Payne, M. D, Chrissis, J. W., Pohl, E. A., Bowersox, R. D. W., Gruber, M. R., and Fuller, R. F., "Optimizing Scramjet Fuel Injection Array Design," 35th Joint Propulsion Conference, Los Angeles, CA, 20-23 June 1999.

*Chan, Y., Isensee, E., and Chrissis, J., "Multi-Criteria Vehicle Routing: Security vs. Efficiency," Spring National Meeting of the Institute for Operations Research and Management Sciences (INFORMS), Cincinnati, OH, May 1999.

*Fuller, D. E., Moore, J. T., Deckro, R. F., and Chrissis, J. W., "Optimizing Airborne Area Surveillance Asset Placement," Spring National Meeting of INFORMS, Cincinnati, OH, May 1999.

COLLINS, Maj PETER J. (ENG)

Collins, P.J., "Electromagnetic Research at the Air Force Institute of Technology," Wright State University PhD Seminar Invited Lecture, 4 Jun 99.

*Girard, J.A., A.J. Terzuoli, Jr., and P.J. Collins, "Radar Cross Section Fluctuations Due to Dynamic Wing Flex," 45th Annual Tri-Service Radar Symposium, Monterey CA, June 1999.

CROWN, Maj JOHN S. (ENC)

Crown, J. S., "Modified Goodness-of-Fit Tests for the Weibull Distribution Using Normalized Spacings", 1999 Spring INFORMS Conference, Cincinnati, OH, May 1999.

DECKRO, RICHARD F. (ENS)

*Deckro, R. F., Kloeber, J. M., and Hebert, J., "Analysis of Risk and Uncertainty in New Product Development Projects," Fall National Meeting of the Institute for Operations Research and Management Sciences (INFORMS), Seattle WA, October 1998.

*Wilson, H., Jackson, J. A., Kloeber, J. M., Deckro, R. F., and Parnell, G. S., "Quantifying the Technological Uncertainty of DNAPL Cleanup," Fall National Meeting of INFORMS, Seattle WA, October 1998.

Deckro, R. F., "Recent IO Efforts at AFIT/ENS," IO Workshop, November 1998.

*Kerchner, P., Deckro, R. F., and Kloeber, J. M., "A Value Driven Approach for Psychological Operations," AF PSYOP Working Group Meeting, February 1999.

*Doyle, M. P., Deckro, R. F., Jackson, J. A., and Kloeber, J. M., "Value Driven Measures of Merit for Offensive Information Operations," Information Assurance Metrics Workshop, March 1999.

Deckro, R. F., "Challenges in Demonstrating Basic Research on Dynamic Planning & Execution to the Air Force," Panel Discussion, AFOSR New World Vista Meeting, May 1999.

*Fuller, D. E., Moore, J. T., Deckro, R. F., and Chrissis, J. W., "Optimizing Airborne Area Surveillance Asset Placement," Spring National Meeting of INFORMS, Cincinnati, OH, May 1999.

DECKRO, RICHARD F. (ENS) (continued)

*Deckro, R. F., and Kloeber, J. M., "Road Warriors: Educating with the Virtual Research Team in Today's Global Environment," invited speakers for 1999 Teaching Effectiveness Colloquium Spring National Meeting of INFORMS, Cincinnati, OH, May 1999.

*Burke, E., Kloeber, J. M., and Deckro, R. F., "Quality Function Deployment from an Operations Research Perspective," 67th Military Operations Research Society Symposium (MORSS), U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Sperling, B., Kloeber, J. M., and Deckro, R. F., "Value-Focused Approach to Determining the Top Ten Hazards in Army Aviation," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Renfro, R., Deckro, R. F., and Kloeber, J. M., "What Makes a Man?: Modeling Considerations for Individual Behavior," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Kerchner, P., Deckro, R. F., and Kloeber, J. M., "Modeling PSYOP: A VFT Approach," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999, won best Working Group presentation.

*Romaine, J. M., Bailey, T. G., Deckro, R. F., and Carlton, W. B, "Solving the Airlift Loading Problem Using Reactive Tabu Search," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

Hebert, J. E. and Deckro, R. F., "A Multi-Dimensional Tradeoff Approach to Resource Management in a Labor Intensive Project Environment," 5th International Conference of the Decision Science Institute, Athens, July 1999.

*Deckro, R. F. and Kloeber, J. M., "Modeling Information Operations," Information Assurance Metrics Workshop, August 1999.

DELOACH, Maj SCOTT A. (ENG)

DeLoach, S.A., "Design Issues for Mixed-Initiative Agent Systems," Workshop on Mixed-Initiative Intelligence, Orlando FL, 18 Jul 99.

DeLoach, S.A., "Multiagent Systems Engineering: A Methodology and Language for Designing Agent Systems," Workshop on Agent-Oriented Information Systems (AOIS '99), May 1999.

FRANKE, MILTON E. (ENY)

Franke, M. E., "Engineering of Complex Systems for the Future," ASME International Mechanical Engineering Congress and Exposition, Anaheim, CA, Sessions on Global Technologies for the Competitive Edge, 15-20 November 1998.

Snyder, C. H., Franke, M. E., and Masquelier, M. L., "Wind Tunnel Tests of an Aircraft Turret Model," Paper No. AIAA 99-0939, AIAA 37th Aerospace Sciences Meeting & Exhibit, Reno, NV, 11-14 January 1999.

Franke, M. E., "Engineering of Complex Systems for Global Competitiveness," The Pacific Rim/ASME International Intersociety Electronic & Photonic Packaging Conference & Exhibition, InterPACK '99, Lahaina, Maui, Hawaii, 13-18 June 1999.

Endicott, T. L. and Franke, M. E., "Lean Space Launch Operations," Paper No. AIAA 99-4614, AIAA Space Technology Conference & Exposition, Albuquerque, NM, 28-30 September 1999.

GALLAGHER, Lt Col MARK A. (ENS)

*Snodgrass, A. W., Gallagher, M. A., McIntyre, G. A., and Kloeber, J. M., "Modeling Military Strategic Effects," Air Force Operations Research Symposium, Air Force Institute of Technology, Wright-Patterson AFB, OH, 23-24 September 1999.

*Snodgrass, A. W., Gallagher, M. A., and Kloeber, J. M., "Modeling Military Strategic Effects," 67th Military Operations Research Society Symposium (MORSS), U. S. Military Academy, West Point, NY, 22-24 June 1999.

Weir, J., Gallagher, M. A., Blunk, S., and Garrett, S., "Nuclear Weapon Assignment Model," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Snodgrass, A. W., Gallagher, M. A., and Kloeber, J. M., "Leontief Modeling of Military Strategic Effects," Spring National Meeting of the Institute for Operations Research and Management Sciences, Cincinnati, OH, May 1999.

GOLTZ, MARK N. (ENV)

Garrett, C.A., J. Huang, M.N. Goltz, "Optimization of *in situ* aerobic cometabolic bioremediation of trichloroethylene-contaminated groundwater," *In Situ* and On-site Bioremediation, San Diego, CA, 19-22 April 1999.

Agrawal, A., S.R. Maxwell, E.A. Nehring, M.N. Goltz, and P.L. McCarty, "Microcosm studies of trichloroethylene cometabolism in support of a field demonstration," *In Situ* and On-site Bioremediation, San Diego, CA, 19-22 April 1999.

*Bleckmann, C.A., L.M. Johnson, A.M. Halterman-O'Malley, B. Burke, D. Kellner, and M.N. Goltz, "Biodegradation of aircraft deicing agents in soils: Laboratory studies," *In Situ* and On-site Bioremediation, San Diego, CA, 19-22 April 1999.

McCarty, P.L., G.D. Hopkins, and M.N. Goltz, "Aerobic cometabolic *in situ* biodegradation of trichloroethene in groundwater," 9th Annual Meeting of Society of Environmental Toxicology and Chemistry (SETAC) Europe, Leipzig, Germany, 25 - 29 May 1999.

Gandhi, R.K., M.N. Goltz, G.D. Hopkins, S.M. Gorelick, and P.L. McCarty, "Numerical modeling of a field demonstration of *in situ* cometabolic bioremediation of tricholoroethylene," American Geophysical Union Spring Meeting, Boston, MA, 31 May - 4 Jun 1999.

Goltz, M.N., "Use of horizontal cell groundwater circulation wells for remediation of anisotropic and heterogeneous aquifers," Groundwater Circulation Well Technology Evaluation and Optimization meeting, Salt Lake City UT, 2 June 1999.

*Garrett, C.A., J. Huang, M.N. Goltz, and G.B. Lamont, "Parallel real-valued genetic algorithms for bio-remediation optimization of TCE-contaminated groundwater," Congress on Evolutionary Computation, Washington DC, 6-9 July 1999.

*Burke, B.W., D.L. Kellner, C.A. Bleckmann, E.C. Heyse, M.N. Goltz, "Aircraft deicing agent biodegradation in soils: Laboratory studies," Society for Environmental Toxicology and Chemistry 20th Annual Meeting, Philadelphia PA, 14 - 18 November 1999.

Gandhi, R.K., M.N. Goltz, P.L. McCarty, and S.M. Gorelick, "Design of a field demonstration of bio-enhanced in-well vapor stripping to treat trichloroethylene contamination," Partners in Environmental Technology Technical Symposium and Workshop, Arlington VA, 30 November - 2 December 1999.

GRAHAM, Maj ROBERT P. (ENG)

Young, F. C., K. Stevens, and R.P. Graham, "Timed Logic Conformance and Its Application," Proceedings of the 1999 ACM/IEEE International Workshop on Timing Issues in Specification and Synthesis of Digital Systems, Monterey CA, 8-9 Mar 99.

GUSTAFSON, STEVEN C. (ENG)

Gustafson, S.C., A.W. Learn, G.R. Little, and J.S. Loomis, " Evolutionary Data Visualization," , SPIE Conference, Orlando FL, 7 Apr 99.

HARTRUM, THOMAS C. (ENG)

Hartrum, T.C. and R.C. Shock, "A Classification Approach for Software System Metrics," 11th Annual Software Technology Conference (STC), Salt Lake City UT, May 1999.

HENGEHOLD, ROBERT L. (ENP)

*Scott, M.B., Y.K. Yeo, R.L. Hengehold, and J.D. Scofield, "High Temperature (500 °C) Implantation Study of P^+ and N^+ Implanted Epitaxial N-Type 4H-SiC," presented at the 25th International Symposium on Compound Semiconductors, held on 12-16 October 1998 in Nara, Japan.

*Ahoujja, M., Y.K. Yeo, and R.L. Hengehold, "Electrical Characterization of SiGeC Films Grown on Si Substrates," presented at the March 1999 Meeting of the American Physical Society, held on 20-26 March 1999 in Atlanta, Georgia.

*Kim, Y.H., Y.K. Yeo, R.L. Hengehold, and D. K. Johnstone, "Excited States of Deep Traps in GaAS," presented at the March 1999 Meeting of the American Physical Society, held on 20-26 March 1999 in Atlanta, Georgia.

*Ahoujja, M., Y.K. Yeo, M.R. Smith, R.L. Hengehold, G.S. Pomrenke, and Jim Huffman. "Hall coefficient singularity observed from p-SiGeC grown on n⁻-Si substrate," presented at the 26th International Symposium on Compound Semiconductors, held on 22-26 August 1999 in Berlin, Germany.

*Weeks, D.E., S.J. Novotny, S. Yang, and R.L. Hengehold, "Quantum Well Dispersion Relations," ARFL DLTR, Fort Walton Beach, FL, May 10-13 1999.

HILL, Lt Col RAYMOND R. (ENS)

Hill, R. R. "An Analytical Comparison of Optimization Problem Generation Methodologies, "1998 Winter Simulation Conference, Washington, DC, 13-16 Dec 1998.

Hill, R. R. "Some Characterizations of Synthetic Multidimensional Knapsack Problems," Spring National Meeting of the Institute for Operations Research and Management Sciences (INFORMS), Cincinnati, OH, May 1999.

*Hill, R. R., McIntyre, G. A., and Bailey, T. G., "Application of the New Sciences in Military Modeling," Spring National Meeting of INFORMS, Cincinnati, OH, May 1999.

*Eravsar, M., Hill, R. R., and Moore, J. T., "A Comparison of Genetic Algorithm Performance on Synthetic Optimization Problems," Spring National Meeting of INFORMS, Cincinnati, OH, May 1999.

HILL, Lt Col RAYMOND R. (ENS) (continued)

*Hill, R. R., Franzen, D. W., Kloeber, J. M., and McIntyre, G. A., "A Bayesian Decision Model for Battle Damage Assessment," 67th Military Operations Research Society Symposium (MORSS), U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Hill, R. R., Gaupp, M., and Bailey, T. G., "PICAS: Pilot Inventory Complex Adaptive System," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Hill, R. R., Tighe, T. R., and McIntyre, G. A., "Strategic Effects of Airpower and Complex Adaptive Agents: An Initial Investigation," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Hill, R. R., Walston, J., and Bailey, T. G., "Unmanned Aerial Vehicle Engagement-Level Simulation," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Hill, R. R., O'Rourke, K., Bailey, T. G., and Carlton, W., "Dynamic Routine of Unmanned Aerial Vehicles Using Reactive Tabu Search," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Hill, R. R. and McIntyre, G. A., "Application of the New Sciences in Military Modeling," Air Force Operations Research Symposium, Air Force Institute of Technology, Wright-Patterson AFB, OH, 23-24 September 1999.

HOUPIS, CONSTANTINE H. (ENG)

Houpis, C.H. and S.J. Rasmussen, "Unmanned Research Vehicle (URV): Development, Implementation, & Flight Test of a MIMO Digital Flight Control System Designed Using Quantitative Feedback Theory," NATO/RTA Systems Concepts and Integration Panel (SCI) Joint Symposium on "Advances in Vehicle Systems Concepts and Integration, Ankara, Turkey, 26-28 Apr 99.

Houpis, C.H., was invited by the National Technical University of Athens to present a three-day workshop on Quantitative Feedback Theory to the graduate students during the week of 24 May 99.

Houpis, C.H., was invited to be the Plenary Speaker at the 4th International Symposium on Quantitative Feedback Theory and Robust Frequency Domain Methods held at the University of Natal, Durban, South Africa, 26-27 Aug 99.

JODION, Maj VINCENT J. (ENP)

Jodoin, V.J. "DELFIC and HPAC Cloud Rise Research," Invited, FAS/CIVIC Users' Group Conference, Colorado Springs, CO, 31 Aug – 1 Sep 1999.

JOHN, GEORGE (ENP)

John, G., "Detection of Nuclear Radiation," presented to Montgomery County High School Teachers, sponsored by the American Nuclear Society, 8 June 1999.

KLOEBER, LTC JACK M., Jr. (ENS)

*Deckro, R. F., Kloeber, J. M., and Hebert, J., "Analysis of Risk and Uncertainty in New Product Development Projects," Fall National Meeting of the Institute for Operations Research and Management Sciences (INFORMS), Seattle WA, October 1998.

*Wilson, H., Jackson, J. A., Kloeber, J. M., Deckro, R. F., and Parnell, G. S., "Quantifying the Technological Uncertainty of DNAPL Cleanup," Fall National Meeting of INFORMS, Seattle WA, October 1998.

*Piskator, G., Moore, J. T., and Kloeber, J. M., "Techniques in Using DEA to Model US Army Recruiting," Fall National Meeting of INFORMS, Seattle WA, October 1998.

*Cordeiro, J. D., Friend, M., Bauer, K. W., Miller, J. O., and Kloeber, J. M. "Using Simulation to Model Time Utilization of Army Recruiters," 37th Army Operations Research Symposium, Fort Leavenworth, KS, Oct 1998.

*Kerchner, P., Deckro, R. F., and Kloeber, J. M., "A Value Driven Approach for Psychological Operations," AF PSYOP Working Group Meeting, February 1999.

*Doyle, M. P., Deckro, R. F., Jackson, J. A., and Kloeber, J. M., "Value Driven Measures of Merit for Offensive Information Operations," Information Assurance Metrics Workshop, March 1999.

*Deckro, R. F., and Kloeber, J. M., "Road Warriors: Educating with the Virtual Research Team in Today's Global Environment," invited speakers for 1999 Teaching Effectiveness Colloquium Spring National Meeting of INFORMS, Cincinnati, OH, May 1999.

*Burke, E., Kloeber, J. M., and Deckro, R. F., "Quality Function Deployment from an Operations Research Perspective," 67th Military Operations Research Society Symposium (MORSS), U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Sperling, B., Kloeber, J. M., and Deckro, R. F., "Value-Focused Approach to Determining the Top Ten Hazards in Army Aviation," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Renfro, R., Deckro, R. F., and Kloeber, J. M., "What Makes a Man?: Modeling Considerations for Individual Behavior," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Kerchner, P., Deckro, R. F., and Kloeber, J. M., "Modeling PSYOP: A VFT Approach," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999, won best Working Group presentation.

*Szvetecz, S., Bailey, T. G., Kloeber, J. M., and Carlton, W., "The Simulation and Visualization of Airborne Operations," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999, won best Working Group presentation.

*Hill, R. R., Franzen, D. W., Kloeber, J. M., and McIntyre, G. A., "A Bayesian Decision Model for Battle Damage Assessment," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Deckro, R. F. and Kloeber, J. M., "Modeling Information Operations," Information Assurance Metrics Workshop, August 1999.

LAIR, ALAN V. (ENC)

Lair, A. V., "L'Hospital's Rule as a Test for Series Convergence," Mathematics Department Colloquium, Sinclair Community College, Dayton, OH, February 1999.

LAMONT, GARY B. (ENG)

Bohn, C. and G.B. Lamont, "Asymmetric Load Balancing on a Heterogeneous Cluster of PCs," 1999 Parallel and Distributed Processing Techniques and Applications Conference, PDPTA'99, Las Vegas NV, June 1999.

Van Veldhuizen, D.A. and G.B. Lamont, "Parallelizing the Multiple Objective Evolutionary Algorithm," 9th SIAM Conference on Parallel Processing for Scientific Computing, San Antonio TX, 22-24 Mar 99.

Marmelstein, R.E. and G.B. Lamont, "A New Approach for Evolving Clusters," 1999 ACM Symposium on Applied Computing, SAC'99, San Antonio TX, 28 Feb-2 Mar 99.

Van Veldhuizen, D.A., R.E. Marmelstein, and G.B. Lamont, "A Distributed Architecture for an Adaptive Computer Virus Immune System, 1998 IEEE International Conference on Systems, Man, and Cybernetics, SMC'99, San Diego CA, October 1999.

LIEBST, BRADLEY S. (ENY)

Liebst, B. S. and Saad A., "Prediction and Analysis of Wing Rock Using a Simple Analytic Parameter", 1999 Dayton-Cincinnati Aerospace Science Symposium, Dayton, OH, 7-9 April 1999.

*Swenson, E. D., Turcotte, J. S., Liebst, B. S., Arb, H. A., "Damage Detection Using Pattern Classifiers", SEM Annual Conference on Theoretical , Experimental and Computational Mechanics, Cincinnati, OH, 7-9 June, 1999.

Liebst, B. S. and Saad A., "An Analytic Criterion for the Prediction and Analysis of Wing Rock Onset", 1999 AIAA Atmospheric Flight Mechanics Conference, Portland, OR, 9-11 August 1999.

LOTT, Maj JAMES A. (ENG)

Lott, J.A., "Progress in Red Vertical Cavity Surface Emitting Lasers," 7th International Symposium Nanostructures: Physics and Technology, St Petersburg, Russian Federation, 14-18 Jun 99.

Lott, J.A., N.N. Ledentsov, V.M. Ustinov, Zh. I. Alferov, and D. Bimberg, "Long Wavelength (1.3 um) Quantum Dot Vertical Cavity Surface Emitting Lasers Grown Directly on GaAs Substrates," Advanced Workshop on Frontiers in Electronics, Villard de Lans, Grenoble, France, 31 May- 4 Jun 99.

Noble, M.J., J.P. Loehr, and J.A. Lott, "Semi-Analytic Calculation of Diffraction Losses and Threshold Currents in Microcavity VCSELs," IEEE Lasers and Elecro-Optics Society Annual Meeting, Orlando FL, 01-04 Dec 98.

Noble, M.J., J.P. Loehr, and J.A. Lott, "Comprehensive Design Study of Low-Threshold Microcavity VCSELs," Photonics West '99, San Jose CA 23-29 Jan 99.

Noble, M.J., J.P. Loehr, and J.A. Lott, "Comparison of Optical Analysis Methods for Oxide-Apertured VCSELs," Photonics West '99, San Jose CA, 23-29 Jan 99.

Noble, M.J., J.A. Lott, and P. Sotirelis, "Overview of Air Force In-House VCSEL Modeling Work," IEEE Summer Topicals, San Diego CA, 26-30 Jul 99.

Noble, M.J., P. Sotirelis, J.A. Lott, and J.P. Loehr, "Microcavity Surface Emitting Laser Simulation Using Vector Finite Elements," 1999 DoD HPCMP (High Performance Computing Modernization Program, Users Group Conference, Monterey CA, 7-10 Jun 99.

MAGEE, Maj ERIC P. (ENG)

Magee, E.P. and T.J. Kane, "Bistatic Coherent Laser Radar Performance: CW SNR Calculations," 10th Biennial Coherent Laser Radar Technology and Applications Conference, Mt Hood OR, Jun 99.

MALL, SHANKAR (ENY)

Lykins, C. and Mall, S., "High cycle Fretting Fatigue Behavior of Ti-6-4", Proc. of The Seventh International Fatigue Conference, June 8-12, 1999, Beijing, China.

Mall, S. and Hsu, T. L., "Electromechanical Fatigue behavior of Graphite/Epoxy Laminate Embedded with Piezoelectric Actuator", Proc. of 6th Annual International Symposium on Smart Structures and Materials, 770-779, Newport Beach, CA, 1-5 March 1999.

Iyer, K. and Mall, S., "Fretting Fatigue of Ti-6AL-4V under Variable-Amplitude Loading", Proc. of 4th National Turbine Engine High Cycle Fatigue Conference, Feb. 9-11, 1999, Monterey, CA.

Hamrick, J. L., Mall, S. and Nicholas, T., "High Cycle Fatigue Life of Ti-6AL-4V after being Subjected to Foreign Object Damage", Proc. of 4th National Turbine Engine High Cycle Fatigue Conference, Feb. 9-11, 1999, Monterey, CA.

Al-Hussien, M., Mall, S. and Calcaterra, J. R., "Monotonic and Fatigue Loading Behavior of a 2-D Woven Ceramic Matrix Composite at Room and Elevated Temperatures," Proc. of 12th International Conference on Composite Materials, 6-9 July 1999, Paris.

Gao, X. L. and Mall, S., "A Generic Micromechanics Model for Planar Woven fabric Composites", Proc. of American Society for Composites Fourteenth Technical Conference, Dayton, OH, 917-926, MD, Sept. 27-29, 1999.

Mall, S., "Structural Integrity of Composite Structures Embedded with Piezoelectric Actuators", Proc. of International Conf. On Smart Materials, Structure and Systems, Banglore, India, 7-10 July 1999.

MAYBECK, PETER S. (ENG)

Hanlon, P.D. and P.S. Maybeck, "Characterization of Kalman Filter Residuals in the Presence of Mismodeling," 1998 Conference on Decision and Control, Tampa FL, December 1998.

Hanlon, P.D. and P.S. Maybeck, "Multiple-Model Adaptive Estimation Using Residual Correlation Kalman Filter Bank," 1998 Conference on Decision and Control, Tampa FL, December 1998.

Vasquez, J.R. and P.S. Maybeck, "Enhanced Motion and Sizing of Bank in Moving-Bank MMAE," 1999 American Control Conference, San Diego CA, June 1999.

Vanek, B.J., P.S. Maybeck, and J.F. Raquet, "GPS Signal Offset Detection and Noise Strength Estimation in a Parallel Kalman Filter Algorithm," 1999 ION GPS-99 Conference, Nashville TN, September 1999.

McINTYRE, Lt Col GREGORY A. (ENS)

*Hill, R. R., McIntyre, G. A., and Bailey, T. G., "Application of the New Sciences in Military Modeling," Spring National Meeting of the Institute for Operations Research and Management Sciences (INFORMS), Cincinnati, OH, May 1999.

McIntyre, G. A. and Nelson, F. N., "Intelligence, Surveillance, and Reconnaissance (ISR) in Campaign-Level Simulations," Spring National Meeting of INFORMS, Cincinnati, OH, May 1999.

McINTYRE, Lt Col GREGORY A. (ENS) (continued)

*Hill, R. R., Franzen, D. W., Kloeber, J. M., and McIntyre, G. A., "A Bayesian Decision Model for Battle Damage Assessment," 67th Military Operations Research Society Symposium (MORSS), U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Hill, R. R., Tighe, T. R., and McIntyre, G. A., "Strategic Effects of Airpower and Complex Adaptive Agents: An Initial Investigation," 67th MORSS, U. S. Military Academy, West Point, NY, 22-24 June 1999.

*Hill, R. R. and McIntyre, G. A., "Application of the New Sciences in Military Modeling," Air Force Operations Research Symposium, Air Force Institute of Technology, Wright-Patterson AFB, OH, 23-24 September 1999.

MILLER, Lt Col JOHN O. (ENS)

Miller, J. O. "A New Sequential Goodness-of-Fit Test for the Three-Parameter Weibull Distribution with Known Shape Based on Skewness and Kurtosis," Spring National Meeting of the Institute for Operations Research and Management Sciences (INFORMS), Cincinnati, OH, May 1999.

*Cordeiro, J. D., Friend, M., Bauer, K. W., Miller, J. O., and Kloeber, J. M. "Using Simulation to Model Time Utilization of Army Recruiters," 37th Army Operations Research Symposium, Fort Leavenworth, KS, Oct 1998.

MILLER, Lt Col MIKEL M. (ENG)

Johnston, K.D., "A Comparison of CW and Swept CW Effects on a C/A Code GPS Receiver, " 11th ION GPS-99, Nashville TN, 14-17 Sep 99. (This was a student paper, thus only the student's name could be on it).

Miller, M.M., "An Integrated SAR/GPS/INS for Target Geolocation Improvement," 55th Annual Meeting, Cambridge MA, 28-30 Jun 99.

MOORE, JAMES T. (ENS)

*Piskator, G., Moore, J. T., and Kloeber, J. M., "Techniques in Using DEA to Model US Army Recruiting," Fall National Meeting of the Institute for Operations Research and Management Sciences (INFORMS), Seattle WA, October 1998.

*Eravsar, M., Hill, R. R., and Moore, J. T., "A Comparison of Genetic Algorithm Performance on Synthetic Optimization Problems," Spring National Meeting of INFORMS, Cincinnati, OH, May 1999.

*Fuller, D. E., Moore, J. T., Deckro, R. F., and Chrissis, J. W., "Optimizing Airborne Area Surveillance Asset Placement," Spring National Meeting of INFORMS, Cincinnati, OH, May 1999.

*Ryer, D. M., Bailey, T. G., Moore, J. T., and Carlton, W. B., "Route Selection for the Mobility Analysis Support System Using Tabu Search," 67th Military Operations Research Society Symposium (MORSS), U. S. Military Academy, West Point, NY, 22-24 June 1999.

MURDOCK, Maj W. PAUL (ENS)

Tran, T.H., Murdock, W.P., and Pohl, E.A., "Bayesian Analysis for System Reliability Inferences," International Reliability and Maintainability Symposium, Washington, DC, January 1999.

Betts, M.K. and Murdock, W.P., "Applying Value-Focused Thinking To Eliminating Enemy Satellite Capabilities," Spring National Meeting of the Institute for Operations Research and Management Sciences (INFORMS), Cincinnati, OH, May 1999.

OXLEY, MARK E. (ENC)

Oxley, M. E., "Evaluating the Vapnik-Chervonenkis Dimension of a set of Artificial Neural Networks using the Poincare Polynomial", SPIE AeroSense'99, Orlando FL, 5 April 1999.

Oxley, M. E., "Evaluating the VC Dimension using the Poincare Polynomial", Colorado State University, Mathematics Seminar, 18 May 1999.

Oxley, M. E., "Whitney Reduction Networks for Process Discovery", Second International Conference on Intelligent Processing and Manufacturing of Materials, Honolulu, HI, 15 July 1999.

PACHTER, MEIR N. (ENG)

Pachter, M., "Kalman Filtering Concept for Adaptive Optics," ABL Advanced Concepts Workshop, AFRL/DEBA, Kirtland AFB NM, 1 Sep 99.

Pachter, M., "An Algorithm for Control System Loop Gain Identification," Mediterranean Control Conference, Haifa, Israel, 28-30 Jun 99.

Pachter, M. and M. Oppenheimer, "Algorithm Development for On-Line Control of the ABL," 1999 AeroSense Conference, Orlando FL, 5-9 Apr 99.

Chandler, P. and M. Pachter, "Parameter Estimation for Over-Actuated Aircraft with Nonlinear Aerodynamics," 1999 AIAA Guidance, Navigation and Control Conference, Portland OR, 9-11 Aug 99.

McNamee J. and M. Pachter, "Efficient Nonlinear Reference Governor Algorithm for Constrained Tracking Control Problem," American Control Conference, San Diego CA, 2-4 Jun 99.

PERRAM, Lt Col GLEN P. (ENP)

R.F. Franklin and G.P. Perram, "Laser Excitation Spectra and Franck-Condon Factors for Bi_2 $X^1\Sigma_g^+$ - $A0_u^+$" International Symposium on Molecular Spectroscopy 54th Meeting, Columbus, OH, June 1999.

M.D. Dolezal and G.P. Perram, "Predissocitive Rate Constants for $Bi_2(A)$ from Pulsed Dye Laser Lifetime Data", International Symposium on Molecular Spectroscopy 54th Meeting, Columbus, OH, June 1999.

PYATI, VITTAL P. (ENG)

Mediavilla, R., W. O'Connor, and V.P. Pyati, "Terrain Backscatter Coefficient Generator," EMCC Annual Meeting, HRL Laboratories, Malibu CA, April 1999.

QUINN, DENNIS W. (ENC)

Hemmes, J. M., D. W. Quinn, and J. M. McDougal, "Modeling Chemical Absorption Through Membranes," Conference on Topics in Toxicology and Risk Assessment, Hope Hotel and Conference Center, Wright-Patterson AFB, OH, April, 1999.

RAQUET, Capt JOHN F. (ENG)

*Vanek, B.J., P.S. Maybeck, and J.F. Raquet, "GPS Signal Offset Detection and Noise Strength Estimation in a Parallel Kalman Filter Algorithm," 1999 ION GPS-99 Conference, Nashville TN, September 1999.

ROH, WON B. (ENP)

B. C. Rodgers, T. H. Russell, and W. B. Roh, "Coherent and Incoherent Beam Combining and Cleanup via Stimulated Brillouin Scattering in Multi-mode fiber," Presented at CLEO-Pacific Rim '99, Seoul, Korea, 31 Aug - 3 Sep 1999.

B. C. Rodgers, T. H. Russell, and W. B. Roh, "Semiconductor Laser Beam Combining and Cleanup via Stimulated Brillouin Scattering in Multi-mode fiber," Invited presentation at the 1999 Diode Laser Technology Review, Fort Walton Beach, FL, 11-14 May 1999.

SPENNY, CURTIS H. (ENY)

Spenny, C.H. " Telerobotics," Presentation to the Honor Seminars of Metropolitan Dayton, February 18, 1999 and December 2, 1999.

TALBERT, Maj MICHAEL L. (ENG)

Talbert, M.L., "Summary of Research," Presentation of UAV video segmentation and scene semantics detection algorithm to AFRL/IFEC, 3 March 1999.

Talbert, M.L., "AFIT C.E.N.T.R.A.L. Database System," AFIT C.E.N.T.R.A.L. is the Consolidated EN Tracking and Reporting of Academic Labors database system based on an amalgam of work done by Gregg and Jason Gunsch, Gaby Pollack, Dan DiPiro, Alex Lee, Penelope Noe, Jason Ward and Micharl Talbert. Presented to AFIT Command Group and Staff, November 10, 1999.

TERZUOLI, ANDREW J., JR. (ENG)

Girard, J.A., A.J. Terzuoli, Jr., and P.J. Collins, "Radar Cross Section Fluctuations Due to Dynamic Wing Flex," 45th Annual Tri-Service Radar Symposium, Monterey CA, June 1999.

Eigel, Jr., R.L. and A.J. Terzuoli, Jr., "Biostatic Radar Cross Section of Complex Objects," 1999 IEEE/APS International Symposium, Orlando FL, 11-16 Jul 99.

Eigel, Jr., R.L. and A.J. Terzuoli, Jr., "Bistatic Scattering from Complex Objects," XXVIth General Assembly, Toronto, ON, Canada, 13-21 Aug 99.

Utton, T.S. and A.J. Terzuoli, Jr., "Application of the Finite Difference Time Domain (FDTD) Technique to the Analysis and Design of Transverse Electromagnetic (TEM) Horns," XXVIth General Assembly, Toronto, ON, Canada, 13-21 Aug 99.

*Cochran, J.G., P.J. Collins, A.J. Terzuoli, Jr., and E.A Mendez, "Scattering from Bubbles in Radar Absorbing Material," 45th Annual Tri-Service Radar Symposium, Monterey CA, June 1999.

TERZUOLI, ANDREW J., JR. (ENG) (continued)

Eigel, R. L, Jr., A.J. Terzuoli, Jr., and G. Nesti, "Bistatic Radar Cross Section of Complex Objects," 1999 International Geoscience and Remote Sensing Symposium, Hamburg, GE, 28 Jun-2 Jul 99.

TURCOTTE, Lt Col JEFFREY S. (ENY)

J. S. Turcotte, "A Coupled Plate Model of a Bladed Disk Assembly," 35th AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit, June 20-23, 1999, Los Angeles, CA, paper no. AIAA-99-2809.

WALTERS, Lt Col MICHAEL K. (ENP)

Russ, Robert L., D. Dean, and M.K. Walters: Analyzing the Planetary Boundary Layer in Transport and Diffusion Atmospheric Modeling: A Four Algorithm Comparison. Air and Waste Management Association 92nd Annual Meeting, June 1999.

WEEKS, DAVID E. (ENP)

T.A. Niday and D.E. Weeks, "Scattering Matrix Elements for the Fine Structure Transition $B(^2P_{1/2})$ + $H_2(j=0)$ $B(^2P_{3/2})$ + $H_2(j=0)$," AFOSR HEDM Contractors Conference, Cocoa Beach FL, June 7 - 11, 1999.

*D.E. Weeks, S.J. Novotny, S. Yang, and R.L. Hengehold, "Quantum Well Dispersion Relations," AFRL DLTR, Fort Walton Beach, FL, May 10-13 1999.

T.A. Niday and D.E. Weeks, "Inelastic Scattering Matrix Elements for the reaction $B(^2P_{1/2})$ + $H_2(j)$ $\leftrightarrow$ $B(^2P_{3/2})$ + $H_2(j)$," Fall OSAPS meeting, Akron OH, Oct 16 - 17, 1998.

WOLF, Lt Col PAUL J. (ENP)

J.C. Holtgrave and P.J. Wolf, "Collisional broadening and shift of Sr lines by the rare gases," APS Centennial Meeting, 25 March, 1999, Atlanta, GA.

WOOD, AIHUA W. (ENC)

Wood, A. W., "Existence of Entire Large Positive Solutions of Elliptic Systems," AMS Southeast Section Meeting, Special Session on Partial Differential Equations, Gainesville, FL, March 1999.

Wood, A. W., "Electromagnetic Scattering from Cavities," Mathematics Department Applied Mathematics Seminar, Tulane University, New Orleans, LA, April 1999.

Wood, A. W., "Integral Equation Methods for Scattering Problems," Applied Mathematics Seminar, Ohio State University, Columbus, OH, May 1999.

Wood, A. W., "Scattering and Propagation of Electromagnetic Waves," Mathematics Department Applied Mathematics Seminar, University of Strathclyde, Glasgow, Scotland UK, June 1999.

Wood, A. W., "Analysis of Electromagnetic Scattering from a Cavity," AFIT/ENC Mathematics and Applications Group Seminar, June 1999.

Wood, A. W., "Electromagnetic Scattering from a 2-D Trough in a Ground Plane," Applied Mathematics Seminar, Michigan State University, East Lansing, MI, September 1999.

YEO, YUNG KEE (ENP)

*Scott, M.B., Y.K. Yeo, R.L. Hengehold, and J.D. Scofield, "High Temperature (500 °C) Implantation Study of P^+ and N^+ Implanted Epitaxial N-Type 4H-SiC," presented at the 25th International Symposium on Compound Semiconductors, held on 12-16 October 1998 in Nara, Japan.

*Ahoujja, M., Y.K. Yeo, and R.L. Hengehold, "Electrical Characterization of SiGeC Films Grown on Si Substrates," presented at the March 1999 Meeting of the American Physical Society, held on 20-26 March 1999 in Atlanta, Georgia.

*Kim, Y.H., Y.K. Yeo, R.L. Hengehold, and D. K. Johnstone, "Excited States of Deep Traps in GaAS," presented at the March 1999 Meeting of the American Physical Society, held on 20-26 March 1999 in Atlanta, Georgia.

*Ahoujja, M., Y.K. Yeo, M.R. Smith, R.L. Hengehold, G.S. Pomrenke, and Jim Huffman. "Hall coefficient singularity observed from p-SiGeC grown on n⁻-Si substrate," presented at the 26th International Symposium on Compound Semiconductors, held on 22-26 August 1999 in Berlin, Germany.

3.14 OTHER SIGNIFICANT PROFESSIONAL ACTIVITIES

AGNES, Capt GREGORY S. (ENY)

Session Chair, 1998 International Mechanical Engineering Conference and Exposition, Anaheim, CA.

Session Chair, 1999 Smart Materials and Structures Conference, Newport Beach, CA.

Session Chair, 40th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, St. Louis, MO.

Session Chair, 17th Biennial Conference on Mechanical Vibration and Noise, Las Vegas, NV.

BAILEY, Lt Col T. GLENN (ENS)

Chair, Utilizing Java in Operations Research, Spring National Meeting of INFORMS, Cincinnati, OH, May 1999.

Chair, Military Applications, Spring National Meeting of INFORMS, Cincinnati, OH, May 1999.

BROTHERS, Maj CHARLES P., JR. (ENG)

Member, Awards Committee for the 1999 IEEE Nuclear and Space Radiation Effects Conference.

CHAN, YUPO (ENS)

Local Organizing Committee, Spring National Meeting of INFORMS, Cincinnati, OH, May 1999.

Chair, Ethics Committee, Military Operations Research Society.

National Secretary, Omega Rho International Honor Society.

Editorial board, Phalanx.

Associate editor, Naval Research Logistics.

Associate editor, Military Operations Research.

Associate editor, UPDD Journal.

AFIT University Representative, Transportation Research Board, National Research Council.

CHRISSIS, JAMES W. (ENS)

Secretary, Cincinnati/Dayton INFORMS Chapter.

CROWN, Maj JOHN S. (ENC)

Chair, Statistics: Goodness-of-Fit Tests Session of the 1999 Institute for Operations Research and the Management Sciences Spring Conference.

DECKRO, RICHARD F. (ENS)

Associate Editor, <u>Military Operations Research.</u>

Editorial Advisory Board, <u>Computer and Operations Research.</u>

Editorial Advisory Board, <u>IEEE Transactions on Engineering Management.</u>

Co-Chair, Information Operations/Warfare Working Group, Military Operations Research Society (MORS).

Guest Editor, special issue of <u>Military Operations Research</u>, "Operations Research Methods for Information Operations: A Battlespace of the 21st Century" (in progress).

Member, INFORMS Finance Committee.

Chair, INFORMS Bylaws, Policies & Procedures Committee.

Member, INFORMS Subdivisions Committee (Chair, Section/Societies Subcommittee).

Member, Local Committee, Cincinnati Spring 1999 INFORMS Meeting (Co-Chair Invited Sessions).

President, Cincinnati/Dayton INFORMS Chapter.

Track Chair, Production and Operations Management, Western DSI 28th Meeting, April 1999.

DELOACH, Maj SCOTT A. (ENG)

Program Committee, Workshop on Autonomous Software Metrics at Autonomous Agents '99 (AGENTS 99) Seattle WA, 1 May 99.

GALLAGHER, Lt Col MARK A. (ENS)

Director, Military Operations Research Society (MORS).

Chair, MORS Prize Committee.

GOLTZ, MARK N. (ENV)

Member, Science Advisory Committee, U.S. EPA's Great Lakes/Mid-Atlantic Hazardous Substance Research Center.

City of Beavercreek Environmental Advisory Committee.

Consulting Associate Professor at Stanford University.

GUSTAFSON, STEVEN C. (ENG)

Associate Editor of the journal, <u>Optical Engineering</u>

HENGEHOLD, ROBERT L. (ENP)

Conference co-chairman, Fall 1999 Meeting of the Ohio Section of the American Physical Society held in Dayton Ohio on 8-9 October 1999.

116

HILL, Lt Col RAYMOND R. (ENS)

Treasurer, Cincinnati/Dayton INFORMS Chapter.

Reviewer for Military Operations Research .

Reviewer for Naval Research Logistics.

Cluster Chair, Spring National Meeting of INFORMS, Cincinnati, OH, May 1999.

KLOEBER, LTC JACK (ENS)

Chair, Decision Analysis Working Group, Military Operations Research Society (MORS) Symposium, 1999.

Director, Military Operations Research Society .

Associate Editor, Military Operations Research .

Prize Committee Member, MORS.

Education Committee Member, MORS.

Publicity Chair, Spring National Meeting of INFORMS, Cincinnati, OH, May 1999.

LOTT, Maj JAMES A. (ENG)

Lott, J.A., received the 1999 IEEE Dayton Section Harrell V. Noble Award for contributions in electron device research.

Lott, J.A., was named an "Eminent Engineer" by the Tau Beta Pi National Engineering Honor Society.

Lott, J.A., became a Senior Member of IEEE.

MAYBECK, PETER S. (ENG)

Maybeck, P.S., Air Force Materiel Command IDEA Award for research associated with the published scientific paper, "Interrelationship of Single-Filter and Multiple-Model Adaptive Algorithms," coauthored with P.D. Hanlon, March 1999.

Maybeck, P.S., Air Force Materiel Command IDEA Award for research associated with the published scientific paper, "Performance Enhancement of a Multiple Model Adaptive Estimator," coauthored with P.D. Hanlon, March 1999.

Maybeck, P.S., M. Barry Carlton Award for outstanding technical article published in the *IEEE Transactions on Aerospace and Electronic Systems,* 1999.

Vanek, B.J., P.S. Maybeck, and J.F. Raquet won the award for the best paper, "GPS Signal Offset Detection and Noise Strength Estimation in a Paralled Kalman Filter Algorithm," in the "Military & Commercial Applications Fusion" session at the Institute of Navigation's GPS '99 Conference, Nashville TN, September 1999.

MILLER, Lt Col, MIKEL M. (ENG)

Thesis student, K.D. Johnston, received 99 ION best student paper award – he received an all expense paid trip to 99 ION to present the paper. The paper also won the best paper in the session.

MOORE, JAMES T. (ENS)

Expert Associate Editor, Military Operations Research .

MURDOCK, Maj W. PAUL (ENS)

Session chair, 1999 Reliability and Maintainability Symposium (RAMS).

Session chair, Spring National Meeting of INFORMS, Cincinnati, OH, May 1999.

NIXON, Lt Col WM. BRENT (ENV)

Chair, Air and Waste Management Association's Technical Committee on Landfill and Composting.

OXLEY, MARK E. (ENC)

Oxley, M. E., Served as Alumni Board Member for Department of Mathematics, Physics and Geography, Cumberland College, Williamsburg, KY.

PACHTER, MEIR N. (ENG)

Pachter, M., Associate Editor of the *Journal of Optimization Theory and Applications.*

Pachter, M., Session Chairman at the IEEE Conference on Decision and Control, Tampa FL, 16-18 Dec 98.

Pachter, M., Session Chairman at the IEEE Mediterranean Control Conference, Haifa, Israel, 28-30 Jun 99.

RAINES, Maj RICHARD A. (ENG)

Raines, R.A., received the Meritorious Service Medal.

Raines, R.A., Reviewer for IEEE Communications Newsletter.

Raines, R.A., Reviewer for Computer Simulation.

RAQUET, Capt JOHN F. (ENG)

Raquet, J.F. served as the Program Chair for the Institute of Navigation Annual Meeting and was responsible for putting together the technical program.

*Vanek, B.J., P.S. Maybeck, and J.F. Raquet won the award for the best paper, "GPS Signal Offset Detection and Noise Strength Estimation in a Paralled Kalman Filter Algorithm," in the "Military & Commercial Applications Fusion" session at the Institute of Navigation's GPS '99 Conference, Nashville TN, September 1999.

WEEKS, DAVID E. (ENP)

Program chairman for fall meeting of Ohio Section of the American Physical Society held in Dayton Ohio on 8-9 Oct 99.

SECTION 4

GRADUATE SCHOOL OF LOGISTICS AND ACQUISITION MANAGEMENT

4.0 OVERVIEW

Since 1992, the mission of the Graduate School of Logistics and Acquisition Management (AFIT/LA) has been to provide uniquely defense-oriented graduate education in logistics and acquisition management to Air Force and DOD leaders. Through high quality graduate instruction, research and consultation, AFIT/LA provided management knowledge and tools to solve defense logistics and acquisition problems. During Fiscal Year 1999 AFIT/LA focused its educational efforts in acquisition logistics, logistics management, contracting management, cost analysis, information resource management, systems management, software systems management, transportation management, and air mobility. A total of 48 masters' degree students graduated from AFIT/LA programs this fiscal year; they generated 42 theses and graduate research papers addressing issues in core competency areas of logistics processes, improved business practices, software calibration, international logistics, human resources management, operational analysis, and modeling and simulation. Awards for the most outstanding theses went to Captain Gregory Hutson, for his thesis, "Reparable Inventory Reduction Impacts on Air Force Fighter Aircraft Mission Capability," Captain Robert J. Neal, for his thesis, "Cost/Benefit Analysis of Leasing vs. Buying Air Force General Purpose Vehicles," and Major Jorge Guarnieri of the Argentine Air Force for his thesis, "Maintenance Resources Evaluation Technique."

The Master of Mobility program, which was developed at the request of AMC in 1995 to provide Air Mobility Warfare students with a graduate degree in mobility management in conjunction with air warfare concepts, graduated its fifth class of twelve students in June of 1999. The Air Mobility program continued to feature a number of innovations, including the concept of a dual campus operation (Ft Dix NJ and WPAFB), satellite-based distance education, and adjustable course length. Research projects undertaken by the Advanced Studies of Air Mobility (ASAM) students included assessment of cargo and refueling doctrine, more effective scheduling of aircraft, greater cargo visibility, strategic fuel resources, cyberterrorism, transportation of munitions, and reactions to chemical warfare threats in advanced operating locations.

As a result of the decision to close the Graduate School of Logistics and Acquisition Management and merge its programs with those of the Graduate School of Engineering, a decision that had been made during the previous fiscal year, a number of steps were instituted to bring about the necessary downsizing. These included reduction of staff, reassignment of some faculty, and retirements of others. Long-time staff members who left during the year included Ms. Nancy Wiviott, Ms. Mary Ann Klos, Ms. Karen Wyatt, and Ms. Willa Quarmiley. Civilian faculty who retired by the end of the fiscal year included Dr. Anthony D'Angelo, Dr. Leroy Gill, Dr. Freda Stohrer, Dr. Norman Ware, and Dr. Guy Shane. Military faculty who transferred to other locations included Lieutenant Colonels Terry Adler and Karen Currie; Lieutenant Colonel Rick L'heureux retired. Majors Daryl Hauck, Kevin Moore, and William Scott moved on to other assignments. During this difficult time the school continued to provide excellent teaching and research efforts under the strong but caring leadership of Dean Jan Muczyk and Associate Dean Lieutenant Colonel Karen Currie. At the end of the fiscal year, his job at AFIT concluded, Dr. Muczyk continued on to new challenges by accepting a position as Dean of the College of Commerce and Economics at Sultan Qaboos University, in the Sultanate of Oman. New faculty members included Major Stephan Brady and Lieutenant Colonels William Stockman and Brad Ayers.

Faculty research productivity in the school declined as downsizing occurred. However, important faculty research was conducted in the areas of operations and productions management, transportation processes, software development processes, purchasing, and education and training. In spite of the austere environment, the 22 faculty members assigned to the school generated thirteen refereed journal articles and

twelve other publications, and they participated in twenty academic and professional presentations. Those sixteen faculty members who were transferred to the new Graduate School of Engineering and Management faced a new challenge of ensuring continuity and responsiveness to Air Force needs in the programs they brought with them in the new school.

4.1 DEPARTMENT SYMBOLS AND LOCATIONS

The Graduate School of Logistics and Acquisition Management (LA) was located in Building 641, 2950 P Street, Wright-Patterson AFB OH, 45433-7765. For the final year of its operation, these personnel were associated with the offices and departments indicated:

Symbol	School Office/Department	Room
LA	Office of the Dean Dr. Jan P. Muczyk, Dean Lt Col Karen Currie, Associate Dean (Sep-Aug) Lt Col David Petrillo (Aug-Sep)	328
LAA	Graduate Program Office MSgt Jimmie Johnson (Oct-Jan) SSgt Kelly L. Schell (Jan-Sep) Mr. Harry Peterman, Resource Advisor	316
LAC	Assistant Dean for Research and Consulting Dr. David K. Vaughan Ms. Nancy I. Wiviott, Thesis Program Assistant (Oct-Mar)	324
LAL	Department of Graduate Logistics Management Dr. William A. Cunningham	324
LAS	Department of Graduate Acquisition Management Lt Col Richard L'heureux (Sep-July) Lt Col David Petrillo (July-Aug) Lt Col William Stockman (Aug-Sep)	302

4.2 AREAS OF PROFESSIONAL COMPETENCE

Acquisition Management: Ware, Moore, Petrillo
Acquisition Reform: L'heureux, Petrillo
Activity-Based Costing: Caudle
Application of Technology: Heminger, Morris, Srivastava
Acquisition Logistics: Currie, Scott
Budgeting: D'Angelo, Caudle, Stockman
Business Policy: Muczyk, Adler
Buyer-Seller Relationships: L'heureux, Moore
Commercial Business Practices: Petrillo
Computer Graphics: Heminger, Morris, Biros
Computer Infrastructure Design: Heminger, Morris, Biros
Computer Networking: Heminger, Morris, Biros
Contract Management: Petrillo
Contract Negotiation: L'heureux, Petrillo, Stockman
Contracting: L'heureux, Moore, Petrillo, Stockman
Cost Accounting: Caudle, Stockman
Cost Analysis: Cunningham, Stockman
Cost Estimating: Stockman, Caudle
Data Communications: Heminger, Morris, Biros
Database Applications: Heminger, Morris, Biros
Database Theory: Heminger, Morris, Biros
Depot Management: Arostegui, Swartz
Earned Value Methods: Caudle, Stockman
Economic Analysis: Cunningham
Electronic Commerce: Currie, Scott, Heminger
Ergonomics/Human Factors: Shane
Ethics: Vaughan
Expert Systems: Heminger, Morris, Biros
Federal Financial Management Systems: D'Angelo, Caudle
Forecasting: Ware, Moore, Stockman
Foreign Military Sales: Cunningham
Group Support Systems: Heminger, Morris, Biros
Human Resources Management: Steel, Muczyk, Shane
Industrial Engineering: Johnson
Information Management: Heminger, Morris, Biros
Information Resource Management: Heminger, Morris, Biros
International Logistics: Currie, Cunningham
Inventory Management: Currie, Cunningham, Srivastava, Swartz, Johnson
Just-in-Time Manufacturing: Cunningham, Srivastava
Leadership: Shane, Thurston, Rehg, Ward
Learning Curves: Ware, Stockman, Caudle
Logistics Financial Management: Moore
Logistics Management: Currie, Cunningham, Srivastava, Moore, Swartz, Arostegui, Johnson
Maintainability and Supportability: Srivastava, Swartz, Johnson, Arostegui
Management Information Systems: Scott, Heminger, Morris, Biros
Manufacturing Management: Swartz, Arostegui, Johnson
Modeling: Johnson, Arostegui, Swartz
Operations/Production Management: Currie, Srivastava, Ware, Swartz, Johnson, Arostegui
Operations Research: Johnson, Brady, Swartz, Arostegui
Organizational Behavior: Steel, Muczyk, Shane, Thurston, Rehg, Ward
Organizational Learning: Thurston, Rehg, Ward
Performance Measurement: Shane, Thurston, Rehg, Ward

Program Evaluation: Rehg, Thurston, Ward
Project Management: Caudle, Petrillo
Psychometric Theory: Thurston, Rehg
Public Policy Analysis: Cunningham
Quality Management: Ware, Caudle
Regression Modeling: Cunningham, Shane, Rehg, Thurston, Ward
Reliability: Rehg, Thurston, Ward
Research Methods: Shane, Steel, Vaughan, Thurston, Ward, Rehg
Risk Analysis: Caudle, Stockman
Scheduling: Rehg, Ward, Thurston
Simulation: Johnson, Arostegui, Swartz
Software Management: Ayers
Software Measurement: Ayers
Software Product Assurance: Ayers
Software Size and Cost Estimation: Ayers
Strategic Management: Muczyk, Rehg, Thurston, Ward
Strategic Planning: Heminger
Technical Communication: Stohrer, Vaughan
Technology in Education: Heminger, Morris, Biros
Technology Management: Stockman
Technology Transfer: Stockman
Test and Survey Development: Shane, Steel, Rehg, Ward, Thurston
Theory of Constraints: Johnson
Time Series Analysis: Johnson, Rehg
Training and Education: Vaughan, Muczyk
Vocational Placement: Rehg, Ward, Thurston
Warehousing: Swartz, Arostegui

4.3 FACULTY CREDENTIALS

ADLER, TERRY R., Lt Col, Assistant Professor, Department of Graduate Acquisition Management (AFIT/LAS). B.S., Management, United States Air Force Academy, 1981; M.B.A., General Management, Boston College, 1986; Ph.D., Business Policy and Strategy, University of Cincinnati, 1996. Reassigned, 1999.

AROSTEGUI, MARVIN A., Maj, Assistant Professor, Department of Graduate Logistics Management (AFIT/LAL). B.A., Applied Mathematics, University of California at Berkeley, 1987; M.S., Logistics Management, Air Force Institute of Technology, 1992; Ph.D., Business Administration, University of Houston, 1997. Research interests include reparable inventory management, supply chain management, meta-heuristics (tabu search, simulated annealing, and genetic algorithms). Reassigned to the Department of Operational Sciences, Graduate School of Engineering and Management, 1999. Tel. (937) 255-6565 (DSN 785-6565), ext. 4333. E-mail: marvin.arostegui@afit.af.mil

BIROS, DAVID P., Maj, Assistant Professor, Department of Graduate Acquisition Management (AFIT/LAS). B.A., History and Secondary Education, Flagler College, 1985; M.A., Public Administration, Troy State University, M.S., Information Resource Management, Air Force Institute of Technology, 1992; Ph.D., Information and Management Sciences (minor concentration in Strategy), Florida State University, 1998. Research interests include deception via information artifacts, deception detection, information assurance, and the diffusion of technology. Reassigned to the Department of Systems and Engineering Management, Graduate School of Engineering and Management, 1999. Tel. (937) 255-3636 (DSN 785-3636), ext. 4826. E-mail: david.biros@afit.af.mil

BRADY, STEPHAN P., Maj, Assistant Professor, Department of Graduate Logistics Management (AFIT/LAL). B.A., Political Science, Western Maryland College, 1985; M.P.A., Public Administration, New Hampshire University, 1994; M.S., Logistics Management, Air Force Institute of Technology, 1992; Ph.D., Business Administration, Pennsylvania State University, 1999. Research interests include transportation, logistics and supply chain management, consumable and reparable inventory management, simulation, and modeling. Reassigned to the Department of Operational Sciences, Graduate School of Engineering and Management, 1999. Tel. (937) 255-6565 (DSN 785-6565), ext. 4367. E-mail: stephan.brady@afit.af.mil.

BRANDT, CRAIG M., Associate Professor and Head, Department of Graduate Logistics Management (AFIT/LAL). B.A., Economics, Rice University, 1964; M.G.A., Governmental Administration, Wharton School, University of Pennsylvania, 1975; M.A., Secondary Education, Wright State University, 1981; Ph.D., Political Science and Public Administration, University of Cincinnati, 1985. Reassigned to DISAM, 1998.

CAUDLE, MARK D., Maj, Assistant Professor, Department of Graduate Acquisition Management (AFIT/LAS). B.A., Mathematics, University of North Carolina at Chapel Hill, 1984; M.S., Systems Management, Air Force Institute of Technology, 1991; M.A., Business Administration, Ohio State University, 1996; PhD, Ohio State University, 1999. Specialties include total quality management, financial management. Reassigned to Department of Systems and Engineering Management, Graduate School of Engineering and Management, 1999. Tel. (937) 255-6565 (DSN 785-6565), ext. 4316. E-mail: mark.caudle@afit.af.mil

CUNNINGHAM, WILLIAM A. III, Professor and Head, Department of Graduate Logistics Management (AFIT/LAL). B.S., Business Administration, Missouri Southern State College, 1976; M.S., Economics, Oklahoma State University, 1979; Ph.D., Economics, University of Arkansas, 1986. Areas of interest: transportation, strategic mobility, ABC costing, logistics management, public policy analysis, privatization, third-party logistics, international logistics, and international trade. Reassigned to Department of Operational Sciences, Graduate School of Engineering and Management, 1999. Tel. (937) 255-6565 (DSN 785-6565), ext. 4283. E-mail: william.cunningham@afit.af.mil

CURRIE, KAREN W., Lt Col, Associate Dean (AFIT/LA). B.A., English, Duquesne University, 1976; M.A., Diplomacy, University of Kentucky, 1977; M.S. Logistics Management, Air Force Institute of Technology, 1984; Ph.D., Business Analysis (Production/Operations Management), Texas A&M University, 1993. Reassigned to DISAM, 1999.

D'ANGELO, ANTHONY P., Assistant Professor, Department of Graduate Acquisition Management (AFIT/LAS). B.B.A., University of Cincinnati, 1953; M.B.A., School of Business, Air Force Institute of Technology, 1960; D.B.A., Indiana University, 1974. Retired, 1999.

GILL, LEROY H., Professor, Department of Graduate Acquisition Management (AFIT/LAS). B.A., Otterbein College, 1969; M.A., Economics, Ohio State University, 1971; Ph.D., Economics, Ohio State University, 1981. Retired, 1999.

HAUCK, DARYL J., Maj, Assistant Professor, Department of Graduate Acquisition Management (AFIT/LAS). B.S., Operations Research, U.S. Air Force Academy, 1986; M.S., Systems Management, Air Force Institute of Technology, 1992; Ph.D., Industrial Engineering, Arizona State University, 1997. Reassigned, 1999.

HEMINGER, ALAN R., Associate Professor, Department of Graduate Acquisition Management (AFIT/LAS). B.A., Philosophy, University of Michigan, 1966; M.S., Educational Psychology, California State University at Hayward, 1978; Ph.D., Management Information Systems, University of Arizona, 1988. Information resource management, computers and group problem-solving, reengineering, long-term access to information. Reassigned to Department of Systems and Engineering Management, Graduate School of Engineering and Management, 1999. Tel. (937) 255-3636 (DSN 785-3636), ext. 4797. E-mail: alan.heminger@afit.af.mil

JOHNSON ALAN W., Maj, Assistant Professor, Department of Graduate Logistics Management (AFIT/LAL). B.S.M.E., Montana State University, 1982; M.S., Systems Management, Air Force Institute of Technology, 1989; Ph.D., Industrial and Systems Engineering (Operations Research), Virginia Polytechnic Institute and State University, 1996. Industrial engineering, modeling, operations research, quantitative analysis, simulation, acquisition management. Reassigned to Department of Operational Sciences, Graduate School of Engineering and Management, 1999. Tel. (937) 255-3636 (DSN 785-3636), ext. 4284. E-mail: alan.johnson@afit.af.mil

KANKEY, RONALD D., Associate Professor and Head, Department of Graduate Acquisition Management (AFIT/LAS). B.S., Mathematics, Wichita State University, 1968; M.S., Mathematics, Oklahoma State University, 1970; M.A., Business (Management Science), Ohio State University, 1985; Ph.D., Business (Management Science), Ohio State University, 1988. Transferred to AFIT/LS, 1998.

L'HEUREUX, RICHARD A., Lt Col, Assistant Professor, Department of Graduate Acquisition Management (AFIT/LAS). B.A., University of Minnesota, 1975; M.S., Contracting Management, Air Force Institute of Technology, 1988; Ph.D., Strategic Management, Florida State University, 1994. Retired, 1999.

MOORE, KEVIN R., Maj, Assistant Professor, Department of Graduate Logistics Management (AFIT/LAL). B.S., Biology Science, University of Massachusetts at Amherst, 1982; M.S., Logistics Management, Air Force Institute of Technology, 1990; Ph.D., Business Administration, Arizona State University, 1996. Reassigned, 1999.

MORRIS, MICHAEL G., Maj, Assistant Professor, Department of Graduate Acquisition Management (AFIT/LAS). B.S., Bowling Green State University, 1985; M.S., Information Resource Management, Air Force Institute of Technology, 1990; Ph.D., Indiana University, 1996. His research interests include technology acceptance, human-computer interaction, systems analysis and design, and decision-making. Reassigned to Department of Systems and Engineering Management, Graduate School of Engineering and Management, 1999. Tel. (937) 255-3636 (DSN 785-3636), ext. 4578. E-mail: michael.morris@afit.af.mil

MUCZYK, JAN P., Professor of Management and Dean, Graduate School of Logistics and Acquisition Management (AFIT/LA). B.S., Management, 1964; M.S., Management, 1967; D.B.A., Organizational Behavior, 1972; all degrees from the University of Maryland. Accepted new position as Dean, College of Commerce and Economics, Sultan Qaboos University, Muscat, Oman, 1999.

PETRILLO, DAVID, Lt Col, Assistant Professor of Contracting and Acquisition Management, Department of Graduate Acquisition Management (AFIT/LAS), B.A., Government and International Relations, University of Notre Dame, 1982; M.S., Contracting Management, Air Force Institute of Technology, 1992; Ph.D., Business Logistics, Pennsylvania State University, 1998. Research interests include strategic purchasing, purchasing of services, best commercial purchasing practices, and integrated supply chain management. Reassigned to Department of Systems and Engineering Management, Graduate School of Engineering and Management, 1999. Tel. (937) 255-3636 (DSN 785-3636), ext. 4799. E-mail: david.petrillo@afit.af.mil

REHG, MICHAEL, Maj, Assistant Professor of Management, Department of Graduate Logistics Management (AFIT/LAL). B.S., Wildlife Management, University of Wyoming, 1980; M.S., Logistics Management, Air Force Institute of Technology, 1990; Ph.D., Strategic Management, Indiana University, 1998. Research interests include strategic management, organizational change, whistle blowing, organizational structure, ethics, turnover and retention, regression analysis, aerospace defense industry, and international management. Reassigned to Department of Systems and Engineering Management, Graduate School of Engineering and Management, 1999. Tel. (937) 255-3636 (DSN 785-3636), ext. 4711. E-mail: michael.rehg@afit.af.mil

SCOTT, WILLIAM L., Maj, Instructor, Department of Graduate Logistics Management (AFIT/LAL). B.A., Economics, University of Texas, 1970; M.S., Acquisition Logistics, Air Force Institute of Technology, 1990. Reassigned, 1999.

SHANE, GUY S., Associate Professor, Department of Graduate Logistics Management (AFIT/LAL). B.A., Psychology, Washington and Jefferson College, 1963; M.A., Industrial/Organizational Psychology, The George Washington University, 1970; Ph.D., Psychometric Theory, George Washington University, 1978. Retired, 1999.

SRIVASTAVA, RAJESH, Assistant Professor, Department of Graduate Logistics Management (AFIT/LAL). B.Tech.E.E., Indian Institute of Technology, 1977; M.B.A., Business Administration, University of Wisconsin at Whitewater, 1980; Ph.D., Business Administration, Ohio State University, 1986. Accepted new position at HQ AFMC, 1999.

STEEL, ROBERT P., Professor, Department of Graduate Logistics Management (AFIT/LAL). B.A., Psychology, University of Cincinnati, 1974; Ph.D., Industrial Organizational Psychology, University of Tennessee, 1980. Accepted new position at Wright State University, Fairborn OH, 1999.

STOCKMAN, WILLIAM K., Assistant Professor, Department of Graduate Acquisition Management (AFIT/LAS). B.S., Mathematics, Southeast Missouri University, 1977; B.S., Business Administration, Southeast Missouri University, 1977; B.S., Astronautical Engineering, Air Force Institute of Technology, 1984; M.S., Engineering Management, West Coast University, 1986; M.S., Operations Research, Air Force Institute of Technology, 1988; M.A., Economics, George Mason University, 1995; Ph.D., Economics, George Mason University, 1996. Research interests include public choice, source selection evaluation techniques, economic analysis, program evaluation, and general aviation. Reassigned to Department of Systems and Engineering Management, Graduate School of Engineering and Management, 1999. Tel. (937) 255-3636 (DSN 785-3636), ext. 4796. E-mail: **william.stockman@afit.af.mil**

STOHRER, FREDA F., Professor, Department of Graduate Logistics Management (AFIT/LAL). B.A., Music and French, Jacksonville State University, 1952; M.A., English, University of Tennessee, 1962; Ph.D., English, University of North Carolina, 1977. Retired, 1999.

SWARTZ, STEPHEN M., Maj, Assistant Professor, Department of Graduate Logistics Management (AFIT/LAL). A.A.S., Aviation Maintenance Management, Community College of the Air Force, 1984; A.S., Airport Management, Western Oklahoma State College, 1989; B.P.A., Professional Aeronautics (Aviation Maintenance Management), Embry-Riddle Aeronautical University, 1985; M.A., Human Resources Development, Webster University, 1988; M.S., Logistics Management, Air Force Institute of Technology, 1991; Ph.D., Business Administration, Michigan State University, 1999. Research specialties and interests include aviation maintenance systems management, optimization of production systems, Production management and scheduling, project management and scheduling, dynamic and static modeling, and theory of constraints education. Reassigned to Department of Operational Sciences, Graduate School of Engineering and Management, 1999. Tel. (937) 255-3636 (DSN 785-3636), ext. 4285. E-mail: stephen.swartz@afit.af.mil

THURSTON, PAUL W., Maj, Instructor of Management and Organizational Behavior, Department of Graduate Logistics Management (AFIT/LAL). B.S., Mechanical Engineering, Worcester Polytechnic Institute, 1984; M.S., Systems Management, Air Force Institute of Technology, 1989; Ph.D. Candidate, Organizational Studies, State University of New York, Albany. Major Thurston's research interests include decision-making, organizational justice, motivation, small group performance, performance measurement, mentoring, and experimental design/research methods. Reassigned to Department of Systems and Engineering Management, Graduate School of Engineering and Management, 1999. Tel (937) 255-6565 (DSN 785-6565), ext. 4316. E-mail: paul.thurston@afit.af.mil

VAUGHAN, DAVID K., Professor of Technical Communication and Assistant Dean for Research and Consulting (AFIT/LAC). B.S., Engineering Sciences, U. S. Air Force Academy, 1962; M.A., English, University of Michigan, 1969; Ph.D., English, University of Washington, 1974. Technical communications, education and training, military history and literature, operational cockpit environment, doctrine. Reassigned to Dean's Office, Graduate School of Engineering and Management, 1999. Tel. (937) 255-3636 (DSN 785-3636), ext. 4557. E-mail: david.vaughan@afit.af.mil

WARD, MARK, Maj, Assistant Professor of Management and Organizational Behavior, Department of Graduate Logistics Management (AFIT/LAL). B.S., Political Science, Texas A&M University, 1986; M.S., Acquisition Logistics Management, Air Force Institute of Technology, 1992; Ph.D., Business Administration (Organizational Studies), Southern Illinois University, 1998. Research interests include organizational structure and design, organizational culture, research methods. Reassigned to Department of Systems and Engineering Management, Graduate School of Engineering and Management, 1999. Tel. (937) 255-3636 (DSN 785-3636), ext. 4742. E-mail: mark.ward@afit.af.mil

WARE, NORMAN, Professor, Department of Graduate Acquisition Management (AFIT/LAS). B.A., Management, University of Maryland, 1969; M.B.A. and D.B.A., Business Administration, Indiana University, 1971 and 1975. Retired, 1999.

4.4 MASTERS THESES BY PROGRAMS

ACQUISITION LOGISTICS

Capt Tonya M. Luther, "Moderating Effects of Station Isolation on Antecedents and Consequences of Fraternization" (AFIT/GAL/LAL/99S-1). Sponsor: USAF/JAG

COST ANALYSIS

Capt Martin Memminger and 1st Lt Jayson M. Wrona, "Implementation of an Activity-Based Costing System in an Air Force Research Laboratory Environment" (AFIT/GCA/LAS/99S-1). Sponsor: AFRL/DEF

Capt Michael J. Nolette and Capt Steven L. Seely, "The Development of Laser Cost Estimating Relationships (CERs) from Commercial Data" (AFIT/GCA/LAS/99S-2). Sponsor: Phillips Laboratory, Kirtland AFB NM

Capt Joseph C. Willoughby and 2nd Lt Michael D. Prater, "The Adequacy of the Fourteen General System Characteristics as Function Point Adjustment Factors" (AFIT/GCA/LAS/99S-3). Sponsor: AFRL/IFSD

CONTRACT MANAGEMENT

Capt Raymond M. Barben, "The Impact of Acquisition Reform and Political-Fiscal Variables on Air Force GAO-Protests Processed" (AFIT/GCM/LAS/99S-1). Sponsor: SAF/AQCX

Capt Louis D. Bryan, ""Rethinking the Transition from Initial Cost Estimation to Earned Value Management of the Software Development Process" (AFIT/GCM/LAS/99S-2).

Capt Daniel I. Dunn and 1st Lt Robert D. Lorton, "Professional Contracting Certification: An Examination and Model Development" (AFIT/GCM/LAS/99S-3).

Capt Michael R. Hackman and 1st Lt Jack L. Nemceff III, "Public-Public Partnerships: Development of an Alternative Outsourcing Method Decision Model" (AFIT/GCM/LAS/99S-4). Sponsor: HSC/PK

1st Lt Harry T. Loughran and John S. Webb, "Is Outsourcing a Better Value than Organic Support? A Case Study Comparing Organic vs. Contractor Controlled Depot Level Maintenance of the F-117" (AFIT/GCM/LAS/99S-5). Sponsor: SAF/AQCX

INVENTORY MANAGEMENT

Capt Andrew W. Hunt, "An Examination of the United States Air Service's Logistics Operations" (AFIT/GIM/LAC/99S-1).

1st Lt Kieran F. Keelty, "A Statistical Analysis of the Variability Experienced in DLA Administrative and Production Lead Time" (AFIT/GIM/LAL/99S-2). Sponsor: ACC/XRS

1st Lt Gregory S. Webb, "Pollution Prevention Cost Savings Using Supply Chain Reengineering" (AFIT/GIM/LAL/99s-3). Sponsor: AMC/LGSS

INFORMATION RESOURCE MANAGEMENT

Maj Ricardo F. G. Santos, "A Methodology to Apply Business Process Reengineering within the Brazilian Air Ministry" (AFIT/GIR/LAS/99M-9).

LOGISTICS MANAGEMENT

Maj Jorge Guarnieri, "Maintenance Resources Evaluation Technique" (AFIT/GLM/LAL/99M-1).

Maj Guillermo A. Piuzzi, "Acquisition Logistics Guidelines for Improving the Argentine Air Force Weapon System Acquisition Process" (AFIT/GLM/LAL/99M-2)

1st Lt Michael P. Allison, "The Effect of Action Workouts on Aircraft Mission Capability Measurements" (AFIT/GLM/LAL/99S-1). Sponsor: ACC/QMIS

Capt Park D. Ashley, "Operational Risk Management and Military Aviation Safety" (AFIT/GLM/LAL/99S-2).

Capt Robert L. Charlesworth, "An Exploratory Analysis of the Responsiveness Capability of the Air Expeditionary Wing (AEW) Concept" (AFIT/GLM/LAL/99S-3). Sponsor: AMC/DOXP

Capt David P. Collette, "Comparison of the Effects of Eight-Hour and Twelve-Hour Shifts on Air Force Aircraft Maintenance Production Levels" (AFIT/GLM/LAL/99S-4). Sponsor: AMC/436th AGS

Capt Timothy W. Gillaspie, "Logistics Factors Affecting Initial Deployed Aircraft Sortie Generation" (AFIT/GLM/LAL/99S-5).

Capt Gregory E. Hutson, "Reparable Inventory Reduction Impacts on Air Force Fighter Aircraft Mission Capability" (AFIT/GLM/LAL/99S-6). Sponsor: AFMC/LG

1st Lt Shawn R. Jones, "Workplace Violence: Exploring the Dangers for Air Force Leadership" (AFIT/GLM/LAL/99S-7).

Capt Peter D. Lommen, "A Methodology for the Analysis and Prediction of Air Force Enlisted Aircraft Maintenance Personnel Retention Rates Using Economic Statistics" (AFIT/GLM/LAL/99S-8). Sponsor: ASC/CC

1st Lt Julio C. Messias, "The Challenge of Maintaining or Replacing an Aging Airlift Fleet: A Cost/Capability Analysis of the Brazilian Air Force Mobility System" (AFIT/GLM/LAL/99S-9).

Capt Lawrence J. Stetz, "An Ex Post Facto Analysis of E-3 Maintenance Indicators in the 552nd Air Control Wing since Reorganization under an Aircraft Generation Squadron Concept" (AFIT/GLM/LAL/99S-10).

TRANSPORTATION MANAGEMENT

Capt Richard H. Fillman, "The Privatization of the Aerospace Guidance and Metrology Center at Newark AFB" (AFIT/GTM/LAL/99S-1).

Capt Jeffrey L. Frye, "A Comparison of Department of Defense and Private Sector Fraternization Policies" (AFIT/GTM/LAC/99S-2). Sponsor: USAF/JAG

1st Lt Michael J. Gravier, "Logistic Regression Modeling of Diminishing Manufacturing Sources for Integrated Circuits" (AFIT/GTM/LAL/99S-3). Sponsor: AFRL/MLMP

Capt Frank J. Long, "Space Available Transportation: An Analysis of the Cost of Providing 'Free' Travel" (AFIT/GTM/LAL/99S-4). Sponsor: AMC/DONP

Capt Robert J. Neal, "Cost/Benefit Analysis of Leasing vs. Buying Air Force General Purpose Vehicles" (AFIT/GTM/LAL/99S-5). Sponsor: USAF/ILTV

ADVANCED STUDIES IN AIR MOBILITY

(Note: The Air Mobility graduate program is designed specifically for personnel of the Air Mobility Command; students in the Air Mobility program write graduate research papers supporting topics of interest to AMC; the results of their papers are not included in the research summaries presented in Section 2 of this report.)

Maj Philip M. Calvano, "Joint Task Force J3/J4: Directorate of Mobility Forces" (AFIT/GMO/LAL/99E-1)

Capt Karn L. Carlson, "Reducing Aircraft Quick-Turn Ground Times in the European Environment" (AFIT/GMO/LAL/99E-2)

Maj Steven D. Dye, "Improving African Fuel Availability in Support of Humanitarian Relief Operations" (AFIT/GMO/LAC/99E-3).

Capt Geoffery M. Gibbs, "Cyberterrorism and Mobility Operations" (AFIT/GMO/LAS/99E-4).

Maj Martin T. Gimbus, "Examining Air Mobility Command Support to the Expeditionary Aerospace Force" (AFIT/GMO/LAL/99E-5).

Maj Jeffrey L. Hupy, "Command and Control of Mobility Forces: Analysis of the Organizational Structure" (AFIT/GMO/LAL/99E-6).

Maj Richard C. Leatherman, "Are Civilian Munitions Carriers Ready for Two Major Theater Wars?" (AFIT/GMO/LAL/99E-7).

Maj Richard P. MacKeen, "Weather Constrained Throughput: Substituting Spangdahlem and Ramstein for Rhein Main" (AFIT/GMO/LAL/99E-8).

Maj Patrick X. Mordente, "The Challenges Facing Tanker Airlift Control Elements (TALCE) in their Preparations for Chemical Warfare" (AFIT/GMO/LAC/99E-9).

Maj Paul R. Murphy, "The Availability of Container Shipping Needed to Meet Wartime Ammunition Sustainment Requirements" (AFIT/GMO/LAL/99E-10).

Maj Christopher B. Patterson, "The Application of Automatic Identification Technology for Intransit Visibility at Remote Locations" (AFIT/GMO/LAL/99E-11).

Maj Timothy H. Robinson, "Near Zero-Zero Precision Approach: Enhanced Vision as a Possible Solution" (AFIT/GMO/LAL/99E-12).

4.5 JOURNAL PUBLICATIONS

[* Denotes duplicate entry, multiple faculty authors.]

BRANDT, CRAIG M. (LAL)

Brandt, Craig M., and Paul L. Hartman, "International Armaments Cooperation: Can It Fulfill Its Promise?" Air Force Journal of Logistics 22.3 (Fall 1998): 10-14.

CUNNINGHAM, WILLIAM A. (LAL)

Cunningham, William A., Travis Condon, and Kirk Patterson, "A Comparison of Air Force Organic Airlift and Commercial Air Express Distribution Performance," Air Force Journal of Logistics 23.1 (Spring 1999): 8-12.

*Moore, Kevin R., and William A. Cunningham III, "Social Exchange Behavior in Logistics Relationships: A Shipper Perspective," International Journal of Physical Distribution and Logistics Management 29.2 (1999): 103-121.

CURRIE, LT COL KAREN W. (LA)

Currie, Karen W., "Just-in-Time and Just-in-Place: Education and Training for Logistics Professionals," Logistics Spectrum 33.2 (Apr-Jun 1999): 23-26.

HAUCK, MAJ DARYL J. (LAS)

Hauck, Daryl J., G. C. Runger, and D. C. Montgomery, "Multivariate Statistical Process Monitoring and Diagnosis with Grouped Regression-Adjusted Variables," Communication in Statistics: Simulation and Computation 28.2 (1999): 309-328.

JOHNSON, MAJ ALAN W. (LAL)

Johnson, Alan W., "Simulation: It's the Real Thing," Air Force Journal of Logistics 22.4 (1998): 17-20.

Johnson, Alan W., S. H. Jacobson, and K. A. Sullivan, "Discrete Manufacturing Process Design Optimization Using Computer Simulation and Generalized Hill Climbing Algorithms," Engineering Optimization 31 (1998): 247-260.

Johnson, Alan W., S. H. Jacobson, K. A. Sullivan, M. A. Fleischer, and A. Kumar, "Metaheuristics for a Flexible Assembly System Design Problem," Journal of Heuristics 3.2 (1997): 139-159.

MOORE, MAJ KEVIN R. (LAL)

Moore, Kevin R., and William A. Cunningham III, "Social Exchange Behavior in Logistics Relationships: A Shipper Perspective," International Journal of Physical Distribution and Logistics Management 29.2 (1999): 103-121.

MORRIS, MAJ MICHAEL G. (LAS)

Morris, Michael G., C. Speier, and J. Hoffer, "An Examination of Procedural and Object-oriented Systems Analysis Methods: Does Prior Experience Help or Hinder Performance?" Decision Sciences 30.1 (1999): 107-136.
Morris, Michael G., H. Adams, and J. Van Scotter, "Examining E-Mail Use in the Context of Virtual Organizations: Implications for Theory and Practice," International Journal of Electronic Commerce 3.1 (1998): 8-26.

REHG, MAJ MICHAEL (LAL)

Rehg, Michael, Marcia P. Miceli, Janet P. Near, and Katherine C. Ryan, "Can Laws Protect Whistle-Blowers? Results of a Naturally Occurring Field Experiment." Work and Occupations 26.1 (February 1999): 129-151.

SWARTZ, MAJ STEPHEN M. (LAL)

Swartz, Stephen M, David J. Closs, James E. Eckert, Thomas J. Goldsby, and Tony A. Roath. "An Empirical Comparison of Anticipatory and Response-Based Supply Chain Strategies." International Journal of Logistics Management 9.2 (1999): 21-34.

VAUGHAN, DAVID K. (LAC)

Vaughan, David K., "The Wright Brothers, Birdflight, and the Invention of the Flying Machine," The Vincent Brothers Review 7.2 (1999): 71-85.

4.6 OTHER PUBLICATIONS

[* Denotes duplicate entry, multiple faculty authors.]

CAUDLE, MAJ MARK D. (LAS)

Caudle, Mark D., Activity-Based Costing Applications with Logistics and their Effect on Logistics Decision Making. Diss., Ohio State University, 1999.

JOHNSON, MAJ ALAN W. (LAL)

Johnson, Alan W., S. H. Jacobson, and K. A. Sullivan, "Generalized Hill Climbing Algorithms for Discrete Manufacturing Process Design Problems Using Computer Simulation Models," Proceedings of the Conference on Modeling and Simulation, European Simulation Multiconference, 473-478.

MORRIS, MAJ MICHAEL G. (LAS)

Morris, Michael, G., and D. Schmidt, "An Exploratory Analysis of Information Systems and Training for Air Force Officers," Proceedings of ISECON, Association of Information Technology Professionals, San Antonio TX, 15 October 1998.

MUCZYK, JAN P. (LA)

Muczyk, Jan P., "Stages of Transition from a Planned to a Free Economy: Poland as a Case." Global Business Trends: Contemporary Readings, 1999 Edition. Ed. David L. Moore and Sam Fullerton. Academy of Business Administration, 1999: 15-32.

Muczyk, Jan P., "Poland's Inclusion in NATO: A Form of National Redemption," Dayton Daily News, 22 March 1999: 6A.

Muczyk, Jan P. Review of "The Big L: American Logistics in World War II," Airpower Journal (Spring 1999): 119.

SWARTZ, MAJ STEPHEN M. (LAL)

Swartz, Stephen M. The Effects of Variability and Disruption on Project Stability, Duration, and Net Present Value. Diss., Michigan State University, 1999.

VAUGHAN, DAVID K. (LAC)

Vaughan, David K., "Bentham, Kant, and the Technical Professions," Proceedings of the Conference on Ethics and Technical Education, Raritan Community College, Somerville NJ, 3 June 1999.

Vaughan, David K., "Bert Stiles' *Serenade to the Big Bird*: B-17 as Schoolroom," Proceedings of the 1998 National Aerospace Conference, Wright State University, 2 October 1998.

DuFour, Howard R., Peter J. Unitt, and David K. Vaughan, *Charles Taylor: The Wright Brothers' Mechanician*. DuFour Press, 1998.

Vaughan, David K., "Girl Fliers in a World of Guys: Three 1930s Girls' Juvenile Aviation Series," Dime Novel Round-up 68.1 (1999): 16-27.

Vaughan, David K., twelve entries in *War and American Popular Culture: A Historical Encyclopedia*, ed. Paul Holsinger, Jr. Greenwood Press, 1998.

4.7 SUBSTANTIAL CONSULTATIONS

BIROS, MAJ DAVID (LAS)

Biros, David P., Decision-Making for Managers, AF/SCX, June 1999. Contact: Col Dan Goad/Maj Lisa Jacques.

Biros, David P., Communications Education and Training for the Information Career Field, SAF/AQX, 1999.

SWARTZ, MAJ STEPHEN M. (LAL)

Swartz, Stephen M. Air Expeditionary Force Deployment Movement Decision Support, Defense Advanced Project Research Agency (DARPA) Advanced Logistics Project.

VAUGHAN, DAVID K. (LAC)

Vaughan, David K., Project Management Assistance, AFMC/LGI, December 1998. POC: Mr. Mark Fryman.

4.8 PRESENTATIONS

[* Denotes duplicate entry, multiple faculty authors.]

AROSTEGUI, MAJ MARVIN A. (LAL)

Arostegui, Marvin A., S. N. Kadipasaouglu, W. Xiang, and B. M. Khumawala, "Heuristic Applications for the N-Job M-Machine Scheduling Problem," 1998 Annual Meeting of the Decision Sciences Institute, Las Vegas NV, 22 November 1998.

Arostegui, Marvin A., "Reparable Inventory Management," Institutio de Logistica da Aeronautica, Sao Paulo, Brazil, 16-20 November 1998.

Arostegui, Marvin A., "Logistics and Acquisitions Principles in the International Environment," Center for Hemispheric Defense Studies, Fort McNair, Washington DC, 4 February, 23 April, and 16 June 1999.

CUNNINGHAM, WILLIAM A. (LAL)

Cunningham, William A., Karen W. Currie, and Milton Glisson, "Logistics Visions: A Review of Futures Studies," SOLE Mid-Atlantic Log '99, Hampton VA, 25 January, 24 April 1999.

Cunningham, William A., Karen W. Currie, and William L. Scott, "Higher Education in 2025," 1998 Decision Sciences Institute Annual Meeting, Las Vegas NV, 21 November 1998.

*Cunningham, William A., Karen Currie, and Milton Glisson, "The Internet as the Sixth Mode of Transportation," 1999 Intermodal Distribution Educators Association Annual Meeting, Atlanta GA, 22 April 1999.

CURRIE, LT COL KAREN W. (LA)

Currie, Karen W., "Logistics in 2025." AFIT/LS Professional Continuing Education Course LOG 399, WPAFB OH, 1 October, 19 October, and 16 December 1998; 6 April 1999.

*Currie, Karen W., William A. Cunningham, and Milton Glisson, "Logistics Visions: A Review of Futures Studies," SOLE Mid-Atlantic Log '99, Hampton VA, 24 April 1999.

Currie, Karen W., William A. Cunningham, and Milton Glisson, "The Internet as the Sixth Mode of Transportation," 1999 Intermodal Distribution Educators Association Annual Meeting, Atlanta GA, 22 April 1999.

Currie, Karen W., "Logistics Education and Training: While You Work," SOLE Mid-Atlantic Log '99, Hampton VA, 24 April 1999.

Currie, Karen W., "Logistics Resources on the Internet," Council of Logistics Management, Southwest Ohio Logistics Conference, Dayton OH, 19 May 1999.

Currie, Karen W., Richard A. Andrews, and Michael E. Phillips, "Integrated Logistics Support and Information Systems," SOLEUROPE Workshop, Munich, Germany, 21-25 June 1999.

*Currie, Karen W., William A. Cunningham, and William L. Scott, "Higher Education in 2025," 1998 Decision Sciences Institute Annual Meeting, Las Vegas NV, 21 November 1998.

JOHNSON, MAJ ALAN W. (LAL)

Johnson, Alan W., "Simulation for Logisticians," 1998 SOLE Conference, Seattle WA, 24 August 1998.

Johnson, Alan W., "Simulation for Logisticians," WPAFB Logistics Officers Association, ASC/SY, 10 June 1999.

Johnson, Alan W., "Defense Acquisition Management," Center for Hemispheric Defense Studies, Fort McNair, Washington DC, 5 February, 22 April, and 17 June 1999.

SCOTT, MAJ WILLIAM L. (LAL)

*Currie, Karen W., William A. Cunningham, and William L. Scott, "Higher Education in 2025," 1998 Decision Sciences Institute Annual Meeting, Las Vegas NV, 21 November 1998.

VAUGHAN, DAVID K. (LAC)

Vaughan, David K., "Bentham, Kant, and the Technical Professions," Conference on Ethics and Technical Education, Raritan Community College, Somerville NJ, 3 June 1999.

Vaughan, David K., "The Air Show as Ritual Festival," Third Annual Conference on Holidays, Rituals, Festivals, and Public Display, Bowling Green State University, Bowling Green OH, 23 May 1999.

Vaughan, David K., "The War and the WAC: Bernadine Bailey's Youngest WAC Series," Annual Conference of the Popular Culture Association, San Diego CA, 2 April 1999.

Vaughan, David K., and William Schum, "Varieties of Motivation in Vietnam War Narratives," Annual Conference of the Popular Culture Association, San Diego CA, 1 April 1999.

Vaughan, David K., "Engineering Experiences in the Novels of Nevil Shute," Nevil Shute Centennial Conference, Albuquerque NM, 17 January 1999.

Vaughan, David K., "The Challenge of Pilot Training," 1998 Space Symposium, Kiser Middle School, Dayton OH, 24 October 1998.

Vaughan, David K., "Bert Stiles' *Serenade to the Big Bird*: B-17 as Schoolroom," 1998 National Aerospace Conference, Wright State University, 2 October 1998.

Appendix: Abbreviations for Organizations

There are a number of abbreviations for organizations that are used in this report. This alphabetical listing will only include selected organizations. The Air Force Address Directory has a more comprehensive listing of abbreviations for organizations at its web site at http://afdir.hq.af.mil , additionally, the Defense Technical Information Center has an acronym listing at http://www.dtic.mil/dtic/dtic-acronyms.html . The department symbols for the Graduate School of Engineering are found at Section 3.1 while those of the Graduate School of Logistics and Acquisition Management are depicted in Section 4.1.

ACC	Air Combat Command
AETC	Air Education and Training Command
AFCEE	Air Force Center For Environmental Excellence
AFCESA	Air Force Civil Engineer Support Agency
AFIT	Air Force Institute of Technology
AFMC	Air Force Materiel Command
AFOSR	Air Force Office of Scientific Research
AFOTEC	Air Force Operational Test and Evaluation Center
AFRL	Air Force Research Laboratory
AFSPC	Air Force Space Command
AFTAC	Air Force Technical Applications Center
AIA	Air Intelligence Agency
AMC	Air Mobility Command
ASC	Aeronautical Systems Center
AU	Air University
DISA	Defense Information Systems Agency
DoD	Department of Defense
DOE	Department of Energy
HQ AU	Headquarters, Air University
PACAF	Pacific Air Forces
SAF	Secretary of the Air Force
USAF	United States Air Force

REPORT DOCUMENTATION PAGE	Form Approved OMB No. 074-0188

The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to an penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. **PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.**

1. REPORT DATE (DD-MM-YYYY) 01-05-2000	2. REPORT TYPE Summary Report of Annual Research	3. DATES COVERED (From – To) 01-10-1998 to 30-09-1999

4. TITLE AND SUBTITLE Air Force Institute of Technology Research Report 1999	5a. CONTRACT NUMBER
	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S) Office of the Associate Dean for Research and Consulting, Graduate School of Engineering, and the Assistant Dean of Research and Consulting, Graduate School of Logistics and Acquisition Management	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAMES(S) AND ADDRESS(S) Air Force Institute of Technology Graduate School of Engineering and Management (AFIT/ENR) 2950 P Street, Building 640 WPAFB OH 45433-7765	8. PERFORMING ORGANIZATION REPORT NUMBER AFIT/EN-TR-00-1

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Air Force Institute of Technology (AFIT/ENR) 2950 P Street, Bldg 640 Wright-Patterson AFB, Ohio 45433-7765	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED.

13. SUPPLEMENTARY NOTES
The views expressed in this report are those of the authors and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

14. ABSTRACT

This report summarizes the research activities of the Air Force Institute of Technology's Graduate School of Engineering and Graduate School of Logistics and Acquisition Management. It describes research interests and faculty expertise; lists student theses/dissertations; identifies research sponsors and contributions; and outlines the procedures for contacting either school. Included in the report are: faculty publications, conference presentations, consultations, and funded research projects. Research was conducted in the areas of Aeronautical and Astronautical Engineering, Electrical Engineering and Electro-Optics, Computer Engineering and Computer Science, Systems and Engineering Management, Operational Sciences, Engineering Physics and Logistics and Acquisition Management.

15. SUBJECT TERMS
Air Force Institute of Technology, Research Report 1999

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON Dr. Heidi R. Ries, ENR
a. REPORT U	b. ABSTRACT U	c. THIS PAGE U	UL	145	19b. TELEPHONE NUMBER (Include area code) Commercial: (937) 255-3633 or DSN: 785-3633

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std. Z39-18